



Bharat Heavy Electricals Ltd.,
Electronics Division,
Mysore Road, Bangalore – 560 026

Tender Document for " Supply of INSTRUMENTATION, CONTROL AND THERMOCOUPLE CABLES for KAKARAPARA ATOMIC POWER PROJECT Project Unit 3&4 and RAJASTHAN ATOMIC POWER PROJECT- unit 7 & 8"
"

TENDER REFERENCE DOC	NKG0000692
TENDER DOCUMENT AVAILABLE FROM	REFER E PROCURMENT SYSTEM WEBSITE
LAST DATE AND TIME FOR SUBMISSION OF TENDER	REFER E PROCURMENT SYSTEM WEBSITE
DATE AND TIME FOR TENDER OPENING	REFER E PROCURMENT SYSTEM WEBSITE
SUBMISSION OF TENDER	Bidder to submit tender in E-procurement site : https://bheleps.buyjunction.in/ . Refer instructions give in tender document for offer submission of bid in E-procurement site. Service provider: M-junction

This Tender Document Contains documents as per below index:

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Contact Person at BHEL: NEELKANT GHODE , DGM /PURCHASE(CE-MM-PR) Ph: 080-26998282/26989127

REQUEST FOR QUOTATION



BHARAT HEAVY ELECTRICALS LIMITED
Electronics Division
PB No. 2606, Mysore Road Bangalore - 560026
INDIA

RFQ NUMBER:
NKG0000692

MMI:PU:RF:003

(for all correspondence)
Purchase Executive : NEELAKANT GHODE
Phone : 26998282
Fax : 00918026741572
E-mail: neelkantghode@bheledn.co.in

Please submit your lowest quotation subject to our terms and conditions attached for the material mentioned below. The quotation must be enclosed in a sealed envelope / Fax superscribed with RFQ no. and due date, should reach us on or before the due date by **13.00** hours IST and will be opened on the same day at **13.30** hours at the venue mentioned above. **PLEASE DROP THE OFFER IN THE BOX PROVIDED AT RECEPTION.**

Sl No.	Description	Qty	Unit	Delivery qty
1	FREIGHT CHARGE FREIGHT CHARGES	1	AU	1
2	PR0120006824 CBL 8P, 0.75 Sq.mm, ATC, EPR-LHLS, F-type 8 Pair, 0.75 sq.mm, ATC Conductor, EPR insulation, Individual & overall Shielding with Cu drain wire, Un-Armoured, F Type, LHLS sheathed and as per purchase specification. Test Certificate	19,568	M	4,892 4,892 4,892 4,892
3	PR0120006832 CBL 8P, 0.75 Sq.mm, ATC, EPR-LHLS, G-type 8 Pair, 0.75 sq.mm, ATC Conductor, EPR insulation, Overall Shielding with Cu drain wire, Un-Armoured, G Type, LHLS sheathed and as per purchase specification. Test Certificate	247,440	M	61,860 61,860 61,860 61,860
4	PR0120006840 CBL 2P, 0.5Sq.mm, ATC, EPR-LHLS, F-type 2 Pair, 0.5 sq.mm, ATC Conductor, EPR insulation, Individual & Overall Shielding with Cu drain wire, Un-Armoured, F Type, LHLS sheathed and as per purchase specification. Test Certificate	6,000	M	1,500 1,500 1,500 1,500
5	PR0120006859 CBL 12P, 0.75Sq.mm, ATC, EPR-LHLS, G-type 12 Pair, 0.75 sq.mm, ATC Conductor, EPR insulation, Overall Shielding with Cu drain wire, Un-Armoured, G Type, LHLS sheathed and as per purchase specification. Test Certificate	18,960	M	4,740 4,740 4,740 4,740
6	PR0120006867 CBL 14P, 0.75Sq.mm, ATC, EPR-LHLS, F-type 14 Pair, 0.75 sq.mm, ATC Conductor, EPR insulation, Individual & overall Shielding with Cu drain wire, Un-Armoured, F Type, LHLS sheathed and as per purchase specification. Test Certificate	11,200	M	2,800 2,800 2,800 2,800
7	PR0120006875 CBL 10P, 1.5Sq.mm, ATC, EPR-LHLS, G-type 10 Pair, 1.5 sq.mm, ATC Conductor, EPR insulation, Overall Shielding with Cu drain wire, Un-Armoured, G Type, LHLS sheathed	55,600	M	13,900 13,900 13,900 13,900

For and On behalf of BHEL.

REQUEST FOR QUOTATION



BHARAT HEAVY ELECTRICALS LIMITED
Electronics Division
PB No. 2606, Mysore Road Bangalore - 560026
INDIA

RFQ NUMBER:
NKG0000692

MMI:PU:RF:003

(for all correspondence)

Purchase Executive : NEELAKANT GHODE
Phone : 26998282
Fax : 00918026741572
E-mail: neelkantghode@bheledn.co.in

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Sl No.	Description	Qty	Unit	Delivery qty
	and as per purchase specification. Test Certificate			
8	PR0120006883 CBL 16P, 0.75Sq.mm, ATC, EPR-LHLS, G-type 16 Pair, 0.75 sq.mm, ATC Conductor, EPR insulation, Overall Shielding with Cu drain wire, Un-Armoured, G Type, LHLS sheathed and as per purchase specification. Test Certificate	148,140	M	37,035 37,035 37,035 37,035
9	PR0120006891 CBL 16P, 0.75Sq.mm, ATC, EPR-LHLS, F-type 16 Pair, 0.75 sq.mm, ATC Conductor, EPR insulation, Individual & overall Shielding with Cu drain wire, Un-Armoured, F Type, LHLS sheathed and as per purchase specification. Test Certificate	7,700	M	1,925 1,925 1,925 1,925
10	PR0120006913 CBL 5P, 1.5Sq.mm, ATC, EPR-LHLS, G-type 5 Pair, 1.5 sq.mm, ATC Conductor, EPR insulation, Overall Shielding with Cu drain wire, Un-Armoured, G Type, LHLS sheathed and as per purchase specification. Test Certificate	6,340	M	1,585 1,585 1,585 1,585
11	PR0120006930 CBL 4P, 0.75Sq.mm, ATC, EPR-LHLS, F-type 4 Pair, 0.75 sq.mm, ATC Conductor, EPR insulation, Individual & overall Shielding with Cu drain wire, Un-Armoured, F Type, LHLS sheathed and as per purchase specification. Test Certificate	146,116	M	36,529 36,529 36,529 36,529
12	PR0120006948 CBL 4P, 0.75Sq.mm, ATC, EPR-LHLS, G-type 4 Pair, 0.75 sq.mm, ATC Conductor, EPR insulation, Overall Shielding with Cu drain wire, Un-Armoured, G Type, LHLS sheathed and as per purchase specification Test Certificate	201,560	M	50,390 50,390 50,390 50,390
13	PR0120006956 CBL 2P, 0.75Sq.mm, ATC, EPR-LHLS, G-type 2 Pair, 0.75 sq.mm, ATC Conductor, EPR insulation, Overall	49,200	M	12,300 12,300

For and On behalf of BHEL.

REQUEST FOR QUOTATION

	BHARAT HEAVY ELECTRICALS LIMITED Electronics Division PB No. 2606, Mysore Road Bangalore - 560026 INDIA	RFQ NUMBER: NKG0000692	
MMI:PU:RF:003			
		(for all correspondence) Purchase Executive : NEELAKANT GHODE Phone : 26998282 Fax : 00918026741572 E-mail: neelkantghode@bheledn.co.in	

Please submit your lowest quotation subject to our terms and conditions attached for the material mentioned below. The quotation must be enclosed in a sealed envelope / Fax superscribed with RFQ no. and due date, should reach us on or before the due date by **13.00** hours IST and will be opened on the same day at **13.30** hours at the venue mentioned above. **PLEASE DROP THE OFFER IN THE BOX PROVIDED AT RECEPTION.**

Sl No.	Description	Qty	Unit	Delivery qty
	Shielding with Cu drain wire, Un-Armoured, G Type, LHLS sheathed and as per purchase specification. Test Certificate			12,300 12,300
14	PR0120006964 CBL 2P, 0.75Sq.mm, ATC, EPR-LHLS, F-type 2 Pair, 0.75 sq.mm, ATC Conductor, EPR insulation, Individual & Overall Shielding with Cu drain wire, Un-Armoured, F Type, LHLS sheathed and as per purchase specification. Test Certificate	12,600	M	3,150 3,150 3,150 3,150
15	PR0120006972 CBL 2P, 0.5Sq.mm, Kx type, EPR-LHLS, U/A 2 Pair, Kx type, 0.5 sq.mm, As per ANSI MC 96.1, EPR insulation, Un-Armoured, LHLS sheathed and as per purchase specification Test Certificate	40,000	M	10,000 10,000 10,000 10,000
16	PR0482905263 CBL 3C, 7/0.53, 1.5MM2, ATC, EPR-LHLS, U/A 3 Core, 7/0.53, 1.5 sq.mm, ATC (Annealed Tinned copper), EPR insulated, LHLS inner & outer sheathed, Un-armoured, 1100 V. Test Certificate	16,000	M	4,000 4,000 4,000 4,000

Total Number of Items - 16

Please note that the tender will be opened in the presence of the bidders or his authorised representatives (maximum two per organisation) who choose to be present with authorisation letters. Refer annexure for the terms and conditions.

~~Preference will be given to vendors who accepts our standard payment terms i.e. 100% payment — 30 days after receipt of material at our works subject to acceptance.~~

Please specify Terms of delivery, Excise duty, sales tax, Ex-BHEL, Ex-works surcharge, Insurance, P&F, Freight and other taxes very clearly.

For evaluation, exchange rate (TT selling rate of SBI) as on scheduled date of tender opening (Part-I bid in case of two part bid) shall be considered.

The offers of the bidders who are on the banned list as also the offer of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site www.bhel.com

- i). This is only RFQ not an order.
- ii). In all correspondence quote RFQ No. & due date.
- iii). In Quotation BHEL material code / RFQ Sl. No. should be mentioned clearly.
- iv). Quotation Envelope / Fax not superscribed with RFQ No. and due date is liable for rejection.
- ~~v). Quotation should remain valid for a minimum period of 90 days from due date.~~
- vi). In case of non-receipt of Quotation or regret letter for 3 consecutive RFQs you are liable to be removed from our vendors list.
- vii). All Prices should be written in words and numbers.
- viii). Excise Chapter Heading should be mentioned for all items where VAT is applicable.

For and On behalf of BHEL.

	 A4-10	EPR INSULATED LHLS CABLE	CE/416/EPR CBL/PQR
			Rev. 00
			Page 1 of 3
COPYRIGHT AND CONFIDENTIAL The information contained in this document is the property of BHARAT HEAVY ELECTRICALS LIMITED This must not be used directly or indirectly, in any manner detrimental to the interest of the company		PROJECT : KAPP – UNIT 3&4 RAPP – UNIT 7&8 CUSTOMER : M/S NPCIL ITEM : INSTRUMENTATION, CONTROL AND THERMOCOUPLE CABLES	

		 A4-10	EPR INSULATED LHLS CABLE	CE/416/EPR CBL/PQR Rev. 00 Page 2 of 3
COPYRIGHT AND CONFIDENTIAL The information contained in this document is the property of BHARAT HEAVY ELECTRICALS LIMITED This must not be used directly or indirectly, in any manner detrimental to the interest of the company		<u>GENERAL INSTRUCTIONS TO BIDDERS:</u> Introduction: Bidders are required to submit technical offer for supply of instrumentation, Thermocouple & Control cables. All required documents against this Tender/Specification shall be submitted in English only. Pre-qualification requirements (PQR) are clearly mentioned in Page no 03 of 03 of this Document. In case Bidder does not meet Pre-qualification requirements, their offer will be summarily rejected and Bidder's Technical offers will not be evaluated. 1. <u>Submission of documents:</u> - Documents listed in Page no 03 of 03 of this Document for meeting Pre Qualification Requirements (PQR) should be submitted in a separate cover with "Pre Qualification Document" written on cover. - Technical offer / proposal as per specification Ref: CE/416/NPCIL/CBL/IC-TC, Rev 00 should be submitted in a separate cover with "Technical offer" written on cover. 2. <u>Evaluation methodology:</u> - Bidder's PQR document cover only will be opened first for review and evaluation by BHEL. In case the bidders offer do not meet the PQR, then corresponding techno-commercial offer will not be considered for further evaluation in the tender. Technical bids of those bidders who meet PQR shall be opened for review and further consideration. - Bidders declared qualified for meeting Pre Qualification Requirements mentioned in Page no 03 of 03 of this Document and are presently not registered with BHEL EDN Bangalore for supplying these cables, shall be informed by email to submit online BHEL vendor registration form at www.bhel.com. - Bidders declared qualified for meeting Pre Qualification Requirements mentioned in Page no 03 of 03 of this Document but are not in NPCIL approved vendor list for the project, their credential documents as provided by bidder under PQR shall be forwarded to M/s NPCIL for approval. If NPCIL does not approve such vendors proposed for approval, their offer will be technically rejected and shall not be considered for further process for procurement. 3. If required during evaluation of PQR and Technical offers/bids, vendor should be present at BHEL Electronic Division, Bangalore, for discussions. Further in the event of order, during approval of the Vendor documents by Customer, Vendor shall accompany BHEL representative for discussions with customer / consultant. 4. This specification does not prohibit any vendor to submit their offer along with clause wise deviation from the specification. Changes in technical specification / Scope etc shall be informed to Participating bidders only.		

		 A4-10	EPR INSULATED LHLS CABLE	CE/416/EPR CBL/PQR Rev. 00 Page 3 of 3
COPYRIGHT AND CONFIDENTIAL The information contained in this document is the property of BHARAT HEAVY ELECTRICALS LIMITED This must not be used directly or indirectly, in any manner detrimental to the interest of the company		<u>Pre-Qualification Requirements (PQR)</u> a) The bidder should be a manufacturer and have supplied cables to power plants. Following supporting documents shall be submitted for meeting above requirements: i) The bidders shall submit a list of similar supplies made by him to standards and tolerance specified in this tender document. ii) The bidder shall submit along with the offer, a list of in-house test facilities available with them for carrying out all tests specified in specification Ref: CE/416/NPCIL/CBL/IC-TC/QP, Rev 00 (20 Pages). iii) The bidder shall submit along with the offer the test reports of all the tests specified in specification Ref: CE/416/NPCIL/CBL/IC-TC/QP, Rev 00 (20 Pages) carried out by him on similar type of cables. iv) Bidder shall submit along with the offer descriptive and illustrative literature covering construction and materials used for cables offered. v) The vendor general information like registered office address, Manufacturing Plant address and financial statement such as balance sheet for part three years shall be filled and submitted along with the bid. b) Original Manufacturers of cables outside india, who are submitting offer for this tender, shall have authorized representatives in India for support related to Documentation, technical support and other co-ordination work. Letter from Original Manufacturers detailing Indian representative details should be provided.		



CE/416/NPCIL/CBL/IC-TC

REV 00

PAGE 01 OF 02

PROJECT: 1. KAPP – UNIT 3 & 4
2. RAPP – UNIT 7 & 8

CUSTOMER: M/S NPCIL

PURCHASE SPECIFICATION FOR
INSTRUMENTATION, THERMOCOUPLE & CONTROL CABLES

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REVISION:00

CHECKED & APPROVED

M. DHARMASHEKAR

PREPARED

ISSUED

DATE

G. S. Aruljothi
ARULJOTHI.G.D

416

17/05/2016



A4-11

CE/416/NPCIL/CBL/IC-TC

REV 00

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CONTENTS

Sl. No.	Description	Reference
1	Scope of Supply of Instrumentation, Thermocouple & Control Cables	CE/416/NPCIL/CBL/IC-TC/SOS , Rev 00, Sheets 06
2	Technical Requirements of Instrumentation, Thermocouple & Control Cables	CE/416/NPCIL/CBL/IC-TC/TR, Rev 00, Sheets 13
3	Quality Plan Format	CE/416/NPCIL/CBL/IC-TC/QP, Rev 00, Sheets 19

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CE/416/NPCIL/CBL/IC-TC/SOS

REV 00

PAGE 01 OF 06

PROJECT: 1. KAPP – UNIT 3 & 4
2. RAPP – UNIT 7 & 8

CUSTOMER: M/S NPCIL

SCOPE OF SUPPLY FOR
INSTRUMENTATION, THERMOCOUPLE & CONTROL CABLES

REVISION:00

CHECKED & APPROVED

M. DHARMASHEKAR

PREPARED

ISSUED

DATE

ARULJOTHI.G.D

416

17/05/2016

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CE/416/NPCIL/CBL/IC-TC/SOS

REV 00

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SCOPE OF SUPPLY

- 1) Manufacture, testing, packing, delivery and guarantee of following Instrumentation cables/Thermocouple Cables/Control Cables as per technical requirements reference: CE/416/NPCIL/CBL/IC-TC/TR
 - 1.1) Instrumentation Cables - are Annealed Tinned copper conductor, 0.75 sq.mm, Ethylene-Propylene Rubber insulated, Low Halogen Low smoke (LHLS) sheathed, Un-Armoured, F/G type, 500 V grade cables conforming to IS-6380. (Core to Core – 500 V & Core to earth – 300 V)
 - 1.2) Thermocouple cables – Conductor material as per ANSI MC 96.1, 0.75 sq.mm, Ethylene-Propylene Rubber insulated, Low Halogen Low smoke (LHLS) sheathed, Un-armoured, F type, 500 V grade cables. (Core to Core – 500 V & Core to earth – 300 V)
 - 1.3) Control Cables – Annealed Tinned Copper Conductor, 1.5 sq.mm, Ethylene-Propylene Rubber insulated, Low Halogen Low smoke (LHLS) sheathed, overall shielded, Un-Armoured, 1100 V grade cables
 - 2) **Documents to be furnished**
 - 2.1) Along with the offer(in one set)
 - i) Datasheet of complete cable with all electrical/mechanical/FRLS Properties/parameters
 - ii) Clause-wise deviation list
 - iii) Complete Bill of Material
 - iv) Drawings for cable construction
 - 2.2) After placement of Purchase Order:(for BHEL/Customer approval-soft copy/hard copy (if required))
 - i) Datasheets of complete cable with all electrical/mechanical/FRLS properties/parameters
 - ii) Complete Bill of Material
 - iii) Quality plan of raw material tests, in-process inspection & final inspection for completed cables enlisting all routine, acceptance & type tests in line with specification requirements
 - iv) Drawings for cable construction
 - 2.3) Before Dispatch: (02 sets for review/acceptance)
 - i) Type test reports, acceptance test reports for IC-TC cables from manufacturer
 - 2.4) Final approved drawings/documents: (02 sets at the time of dispatch)
 - i) Bill of Material
 - ii) Datasheets
 - iii) Drawings for the construction of complete cable
- These documents shall be in final as-built/approved status.



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CE/416/NPCIL/CBL/IC-TC/SOS

REV 00

PAGE 03 OF 06

One (01) set soft copy of Final documents shall also be provided to BHEL.

The final documents for supply, inspection, dispatch & records shall only be those which are accorded final approval by BHEL/Customer/Consultant. No other documents apart from those finally approved by BHEL/Customer/Consultant shall be referred for supply, inspection, dispatch & records.

3) Points to be confirmed and adhered by vendor:

- 3.1) Before quoting, vendor shall go through BHEL specifications & RFQ and then submit quotation complete in all respects. Vendor must furnish, all documents, in line with specification along with Offer. The offer should be correct & complete in all respects. Incomplete offers (without documents / not relevant documents as mentioned above) /erroneous offers will be rejected without any notice. Vendor shall confirm/agree to BHEL clarifications during technical scrutiny. However, if anything is missed out in the original offer due to errors in quoting, the same shall be supplied as per BHEL specifications requirement without any price impact else the offer shall be technically rejected.
- 3.2) This specification has been prepared in line with customer requirements. However if any parameter(s) is/are not possible to meet technically or are practically incompatible with application requirements or deviate from standard technical application requirements, the suppliers are asked to quote as per the standard technical application requirements and bring out such deviations clearly in the technical offer which may get accepted during technical evaluation by BHEL/Customer/Consultant. Please note that any changes related to practical compatibility/standard technical application requirements due to above will be informed to all participating vendors. If a vendor has not participated/not offered originally under this RFQ, he will not be informed of any changes/revised specifications as he is not allowed to quote/offer now. The changes can pertain to quantity changes also under any size of cable. However, if there are any deviations in offer which are not related to any technical application/practical compatibility issues or there are deviations due to error in quoting, the vendor shall have to agree to BHEL clarifications during technical scrutiny and shall supply the material as per the BHEL clarifications & specifications without any price implications on original offer.



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CE/416/NPCIL/CBL/IC-TC/SOS

REV 00

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- 3.3) Vendor shall provide at least 2 valid emails and 2 valid phone numbers which shall serve communication requirements for clarifications during technical clearance and later on during datasheet scrutiny. A separate field in technical offer should be made for this, indicating the emails and numbers. BHEL-EDN shall use these mails and phone numbers for any clarification required. In case the provided mails and phone numbers turn out to be unresponsive and cause excessive delays to the clarifications, the offer would attract technical rejection. Please note that BHEL EDN shall not be responsible for any losses/problems that take place due to misperformance of the above sought emails and phone numbers to be provided by the vendor.
- 3.4) Unit rates to be provided which shall be used for any addition/deletion during tender stage or during detailed engineering or later in case of order.
- 3.5) For Thermocouple Extension KX Type cable, the approved makes for alloy conductors are Driver Harris , Italy, Isabellen Hutte , Germany and JLC, Jaipur.
- 3.6) Please note that all vendors shall meet Customer-QA conditions in total, applicable to test facilities also and same should be confirmed in the technical offer. In case any vendor has finalized/installed a facility recently, then the acceptance of technical offer will rest primarily on confirmation of this facility as per Customer-QA requirements. BHEL will evaluate this facility at vendor's works for approval of Customer-QA and if approved, then only vendor's technical offer will be accepted under this RFQ.
- 3.7) The minimum tests shall be conducted as per specifications. Apart from these, tests shall be conducted to demonstrate parameters listed in specifications. In any case, since the cable specifications requirements are similar to BHEL standard of procurement, hence the QP and cable construction/parameters along with various tests shall be as executed for earlier BHEL projects / or as agreed during technical discussions under various earlier RFQs.
- 3.8) The cable shall be provided as per Customer approved documents - specs, data sheets and Quality Plan after order placement on any vendor.
- 3.9) Please note that during inspection, one drum at random of each cable size/type will be uncoiled and the length will be physically measured. The other drums shall be compared on weight basis, taking the weight of the measured cable drum as reference. Also please note that all the drums so measured/weighed during inspection will be sealed in presence of Inspector before dispatch.
- 3.10) The MQP submitted for approval (after ordering) shall contain the tests/Inspection related to above mentioned progressive length marking and drums length measurement.
- 3.11) In this RFQ Instrumentation & Thermocouple Cables are treated as either one group or two separate groups for ordering based on lowest tender status in each case.

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BOM-I											
PROJECT: KAPP SCS UNITS 3&4											
BOQ - Instrumentation Cables (I) Control cables (C) Thermocouple Cables (TC)											
SL No	Cable Type	Type/ Description	Armouring	TG (Mtrs)	BOP (Mtrs)	MCS (Mtrs)	VMS (Mtrs)	Qty/Unit (Mtrs)	Total qty (Mtrs)	As per Clause 3.2	As per Clause 3.3
1) Instrumentation cables											
a) Overall shielded (OA)											
1	I	2PX0.75 mm ²	Un-armoured	12300				12300	24600	500	24100
2	I	4PX0.75 mm ²	Un-armoured	4600	45790			50390	100780	92580	8200
3	I	8PX0.75 mm ²	Un-armoured	14100	47760			61860	123720	122020	1700
4	I	12PX0.75 mm ²	Un-armoured	2000	2740			4740	9480	9480	
5	I	16PX0.75 mm ²	Un-armoured	2250	34785			37035	74070	69570	4500
6	I	5PX1.5 mm ²	Un-armoured		1585			1585	3170		3170
7	I	10PX1.5 mm ²	Un-armoured		13900			13900	27800		27800
b) Individual and overall shielded (IOA)											
8	I	2PX0.5 mm ²	Un-armoured			1500		1500	3000	3000	
9	I	2PX0.75 mm ²	Un-armoured	3150				3150	6300	6000	300
10	I	4PX0.75 mm ²	Un-armoured	1650	15719		19160	36529	73058	69758	3300
11	I	8PX0.75 mm ²	Un-armoured	750	4142			4892	9784	8284	1500
12	I	14PX0.75 mm ²	Un-armoured				2800	2800	5600	5600	
13	I	16PX0.75 mm ²	Un-armoured		1925			1925	3850	3850	
2) Control cables											
14	C	3CX1.5 mm ²	Un-armoured		3000	1000		4000	8000		
3) Thermocouple extension cables											
Individual and overall shielded (IOA)											
15	TC	2P, Kx, 0.75 sq.mm	Un-armoured	7000	3000			10000	20000		

BOM - II											
PROJECT: RAPP SCS UNITS 7&8											
BOQ - Instrumentation Cables (I) Control cables (C) Thermocouple Cables (TC)											
SL No	Cable Type	Type/ Description	Armouring	TG (Mtrs)	BOP (Mtrs)	MCS (Mtrs)	VMS (Mtrs)	Qty/Unit (Mtrs)	Total qty (Mtrs)	As per Clause 3.2	As per Clause 3.3
1) Instrumentation cables											
a) Overall shielded (OA)											
1	I	2PX0.75 mm ²	Un-armoured	12300				12300	24600	500	24100
2	I	4PX0.75 mm ²	Un-armoured	4600	45790			50390	100780	92580	8200
3	I	8PX0.75 mm ²	Un-armoured	14100	47760			61860	123720	122020	1700
4	I	12PX0.75 mm ²	Un-armoured	2000	2740			4740	9480	9480	
5	I	16PX0.75 mm ²	Un-armoured	2250	34785			37035	74070	69570	4500
6	I	5PX1.5 mm ²	Un-armoured		1585			1585	3170		3170
7	I	10PX1.5 mm ²	Un-armoured		13900			13900	27800		27800
b) Individual and overall shielded (IOA)											
8	I	2PX0.5 mm ²	Un-armoured			1500		1500	3000	3000	
9	I	2PX0.75 mm ²	Un-armoured	3150				3150	6300	6000	300
10	I	4PX0.75 mm ²	Un-armoured	1650	15719		19160	36529	73058	69758	3300
11	I	8PX0.75 mm ²	Un-armoured	750	4142			4892	9784	8284	1500
12	I	14PX0.75 mm ²	Un-armoured				2800	2800	5600	5600	
13	I	16PX0.75 mm ²	Un-armoured		1925			1925	3850	3850	
2) Control cables											
14	C	3CX1.5 mm ²	Un-armoured		3000	1000		4000	8000		
3) Thermocouple extension cables											
a) Individual and overall shielded (IOA)											
15	TC	2P, Kx, 0.75 sq.mm	Un-armoured	7000	3000			10000	20000		



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PROJECT: 1. KAPP – UNIT 3 & 4
2. RAPP – UNIT 7 & 8

CUSTOMER: M/S NPCIL

TECHNICAL REQUIREMENTS FOR
INSTRUMENTATION, THERMOCOUPLE & CONTROL CABLES

REVISION:00

CHECKED & APPROVED

M. DHARMASHEKAR

PREPARED

ISSUED

DATE

G. S. Arul
ARULJOTHI.G.D

416

17/05/2016

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1) General Requirements:

Sl. No.	Description	Technical Requirement
1.1	Codes and Standards	All cables shall comply with std BS 6360 , IS 8130, IS 9968 (Part I), IS 6380, ASTM D-2863, ASTM D-2843, IEC -60754-1, NES 713, SEN-SS 4241475 (Class F-3), IEEE 383, ANSI MC 96.1, IS-8784, VG 95218-Part 66, IS-10810 (latest editions) and their amendments.
1.2	Voltage Grade	As per SOS
1.3	Continuous operation suitability	At 90 deg. C
1.4	Material	All materials used shall be first class. Material should be thermoset. All the materials and processes which are not specified herein shall be chosen so as to enable the purchased product to meet the performance requirement of this specification. Vendor shall have proper machinery for steam vulcanization / e-beam cross linking.
1.5	Workmanship	Workmanship shall be of high industrial quality to ensure the product to be uniform in quality and free from all defects and deformities so as to perform its required function in the specified environment as mentioned over an expected plant life of 40 years.
1.6	Environment conditions	Normal operating conditions: Ambient temp : 8 °C to 45 °C Relative Humidity : 90 % Occasional/Storage conditions: Ambient temp : 5 °C to 55 °C Relative Humidity : 95 %
1.7	Progressive automatic on-line sequential marking of length in meters	To be provided at every one meter on outer sheath
1.8	Marking to read 'LHLS'	To be provided at every 5 m on outer sheath
1.9	Allowable tolerance on overall diameter	±2 mm (max.) over the declared value in datasheet
1.10	Variation in diameter	Not more than 1.0 mm throughout the length of cable

Sl. No.	Description	Technical Requirement
1.11	Ovality at any cross section	Not more than 1.0 mm
1.12	Marking on outer sheath (Embossing on the cable on outer sheath is preferred to printing)	Durable embossing at intervals not exceeding 1 m shall include manufacturer's name, insulation material, conductor's size, number of pairs/cores, voltage rating, type of cable (Conductor size & no. of pairs/type of compensating/extension cable, analog or binary), year of manufacture, drum no or lot no to be provided
1.13	Overall Quantity Tolerance	+2%, -0% (Negative values are not acceptable)
1.14	Others	Cables shall be suitable for crimping, screw termination or cage clamp type screw less terminal blocks, laying in conduits, ducts, trenches, racks and underground-buried installation with chances of flooding by water Repaired cables shall not be acceptable All cables shall be anti-rodent, anti-termite, moisture-retardant & fungus-retardant type. Joints of any kind in the conductor, insulation and sheath are not allowed. Rip cord shall be provided for all cables



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2) Technical Requirements:

Sl. No.	Specification Requirement	Kx Type (Thermocouple cables)	Individual & overall shielding	Overall Shielding
A Conductors				
i	Cross section Area (sq.mm)	0.75 sq.mm		
ii	Conductor material	+ve conductor- Chromel -ve conductor- Alumel	Annealed Tinned Copper conductor	
iii	Color code	Yellow-Red	Refer page no 11, Clause - 3	
iv	Conductor grade	Electrolytic		
v	No & dia. of strands	Solid circular conductor		
vi	No of pairs	As required		
vii	Max conductor resistance per Km(in ohm) at 20 °C	As per ANSI MC 96.1	24.5 ohm/Km (loop)	
viii	Reference standard	As per ANSI MC 96.1	BS 6360/IS 8130	
B Insulation				
i	Material	Ethylene-Propylene Rubber insulated – Type IE2 of IS-6380		
ii	Thickness in mm (Nom)	0.65 mm ± 10%		
iii	Volume resistivity (min) in ohm-cm	1 X 10 ¹⁴ at 20° C & 1 X 10 ¹¹ at 70° C		
iv	Reference standard	IS 6380		
v	Core diameter above insulation	Suitable for cage clamp connector		
vi	Process	Insulation shall be applied by extrusion process and curing by steam vulcanization/e-beam method.		
C Pairing and Twisting				
i	Min lay of pairs/triads(nos)	Min 12 lays/Mtr		
ii	single layer of numbered binder tape on each pair/triad provided	Non-metallic binder such as polyester tape shall be applied over the assembled pairs.		
iii	Unit formation of four pairs with printing of no. of unit provided	NA	Yes	
iv	Conductor /pair identification as per VDE0815	NA	To be provided (Refer to Clause No. 3 under CE/416/NPCIL/CBL/IC-TC/TR)	
D Shielding				
i	Type of shielding	Polyester backed aluminium tape (polyester surface comes to the top)		
ii	Individual pair shielding	To be provided	To be provided	NA
iii	Minimum thickness of individual pair shielding	25 micron	25 micron	NA



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Sl. No.	Specification Requirement	Kx Type (Themocouple cables)	Individual & overall shielding	Overall Shielding
iv	Overall cable assembly shielding	To be provided		
v	Minimum thickness of overall cable shielding	25 micron		
vi	Shielding coverage	100% with at least 25% overlap		
vii	Drain wire provided for individual shield	Annealed tinned solid copper drain wire size of 19 AWG		
viii	Drain wire provided for overall shield	Annealed tinned solid copper drain wire size of 19 AWG		
ix	Metallic side of screen	Metallic side (Aluminium side) of screen shall be in contact with drain wire		
x	Others	Electrostatic fields of individual pairs shall be electrically isolated by providing proper insulation such as polyester tape over the shields.		
E	Fillers (if applicable)			
i	Non-Hygroscopic flame retardant	To be provided for circular shape		
F	Outer sheath			
i	Material	Low Halogen Low Smoke type – Type SE3		
ii	Reference standard	IS 6380		
iii	Nominal thickness at any point	1.3 mm $\pm 20\%$ upto 10 pair 1.7 mm $\pm 20\%$ above 10 pair		
iv	Color	Black		
v	Resistance to water, fungus, termite & rodent attack	Required		
vi	Oxygen index	Not less than 29 % as per ASTMD-2863/IS 10810-58		
vii	Temperature index	Not less than 250 °C as per ASTMD-2863/IS 10810-58		
viii	Smoke density rating as per ASTMD 2843. Test has to be conducted as per IS 10801-63	Maximum 20 % Supplier to indicate the acceptance criterion which is equivalent to 20% smoke density rating as per ASTM-D-2843. Test shall be conducted for 12 minutes instead of 4 minutes as specified by the standard (4 minutes testing is for PVC plastics. Since elastomeric compound is used which do not conform exactly to the standard, therefore test shall be conducted for 12 minutes)		
ix	Acid Gas generation by weight as per IEC - 60754-1/IS 10810-59	Maximum 2 %		
x	Toxicity Index as per NES 713.	Maximum 5		
xi	Process	Sheath shall be applied by extrusion process and curing by steam vulcanization/e-beam method.		
xii	Others	It should be possible to strip the sheath without damaging the insulation		
G	Electrical parameters (at 20 deg. C)			
i	Maximum Mutual capacitance between conductors at 0.8 KHz	200 nF/Km	120 nF/Km	100 nF/Km



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Sl. No.	Specification Requirement	Kx Type (Themocouple cables)	Individual & overall shielding	Overall Shielding
ii	Insulation Resistance (min)	500 M ohm/km		
iii	Cross talk figure (min) at 0.8 KHz	60 dB		
iv	Characteristic impedance (max) at 1 KHz	NA	320 ohm	340 ohm
v	Attenuation figure at 1 KHz(max)	NA	1.2 dB/km	1.2 dB/km
vi	Test Voltage	Core to core: 2.0 KV for1 Min; Core to screen : 2000 V for 1 Min; Screen to armor: 0.5 KV for 1 Min		
H	Complete cable			
I	Complete cable assembly	Shall pass Swedish chimney test as per SEN-SS 4241475 class F3		
li	Flammability	Shall pass flammability as per IEEE 383 read in conjunction to this specification		
I	Tests			
I	Refer to Clause No. 4 under CE/416/NPCIL/CBL/IC-TC/TR			
J	Cable drum			
I	Type	The cables shall be so packed as not to suffer deterioration, damage or breakage during shipment. The ends of the cable shall be sealed by means of non-hygroscopic sealing material and it should prevent ingress of moisture. Packing should be such that the ingress of moisture, dirt and other foreign material can be avoided. Packing method shall be adequate to withstand a period in transit for more than two months and storage at site under a tropical climate for minimum period of one year without suffering any damage or deterioration. Each package shall be properly labelled to indicate the type and quantity of material it contains, purchase order number, dimensions, weight and other necessary data to identify the equipment and relate it to the contract.		
li	Outer most layer covered with water proof paper	Yes		
iii	Painting	Entire surface to be painted		
iv	Length	Cables of each type shall be applied in coil lengths of 500 m± 10%. Coil lengths of 100 to 449 m are considered as non-standard lengths. Non standard lengths of only 10% of ordered quantity are acceptable. Lengths less than 100 m are not acceptable. (The cable is to be provided separately against each unit of the project and therefore balance quantity to complete the supply under each unit of the project shall be provided as a separate drum)		
v	Marking on Drum	The drum shall be marked up with the following information: Reference standard, manufacturer's name, type of cable and voltage grade, number of pairs, cross-sectional area of conductor, length of cable on drum, number of lengths on drum (if more than one) direction of rotation, approximate gross weight, country and year of manufacture etc.		



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3) Conductor/Pair Identification, Unit identification

3.1) The color of insulation for G/F type cables shall be as below. Numbering method used to identify the pairs of cables. The numbers shall be repeated at regular intervals along the core, consecutive numbers being inverted in relation to each other. When the number is single numeral a dash shall be placed underneath it. If the number consists of two numerals they shall be printed one below the other and a dash placed below the lower numeral. The numbers shall be printed on both the wires of pair at an interval of not more than 150 mm.

3.2) The pairs shall be numbered as given in the example for 24 pair cables for overall shielded cables and individual & overall shielded cables.

Blue-1, Red-1, Grey-1, Yellow-1, Green-1, Brown-1, White-1, Black-1;
Blue-2, Red-2, Grey-2, Yellow-2, Green-2, Brown-2, White-2, Black-2;
Blue-3, Red-3, Grey-3, Yellow-3, Green-3, Brown-3, White-3, Black-3;
Blue-4, Red-4, Grey-4, Yellow-4, Green-4, Brown-4, White-4, Black-4;
Blue-5, Red-5, Grey-5, Yellow-5, Green-5, Brown-5, White-5, Black-5;
Blue-6, Red-6, Grey-6, Yellow-6, Green-6, Brown-6, White-6, Black-6;

3.3) The pairs shall be numbered as given in the example for 4 pair cables

Overall shielded cables: The color of insulation in one conductor in a pair shall be Red and other conductor shall be Yellow.

1st Pair : RED – 1 (R 1) & YELLOW – 1 (Y 1)

2nd Pair : RED – 2 (R 2) & YELLOW – 2 (Y 2)

3rd Pair : RED – 3 (R 3) & YELLOW – 3 (Y 3)

4th Pair : RED – 4 (R 4) & YELLOW – 4 (Y 4)

3.4) Individual & Overall shielded cables: The color of insulation in one conductor in a pair shall be White and other conductor shall be Blue. The pairs shall be numbered as above example (Clause 3.3) except.

3.5) Kindly refer BOM of instrumentation cables for color code to be followed for each type of cables.

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4) 3C,1.5 sq.mm, 1100V GRADE, 90 deg. C TEMP. GRADE CONTROL CABLE :

- 4.1) The cable shall be of stranded annealed tinned copper conductor, EPR insulated, LHLS sheathed, Armoured/Un-armoured cables with voltage grade of 1100 V & temperature grade of 90 deg. C. The cables will be of 1.5-sq.mm cross-section, 7 strands [7 X 0.53 mm] (as per IS-8130).
- 4.2) The insulation material shall be extruded Ethylene-Propylene Rubber insulated – Type IE2 (as per IS-5831). The insulation shall be cured by steam vulcanization/e-beam method.
- 4.3) The inner & outer sheath material shall be extruded Low Halogen Low Smoke type – Type SE3. LHLS properties shall be as per clause F (vi,vii,viii,ix,x,xi) of Sl.no 2.
- 4.4) The thickness of insulation, inner sheath & outer sheath shall be conforming to IS-1554, part 1 & other relevant standards.
- 4.5) Cable shall be generally conforming to IS-1554, part 1 and shall also comply with other relevant standards for specific requirements. The list of relevant standards for this cable includes the following - IS-1554, part 1, IS-3961, IS-3975, IS-5831, IS-8130, IS-4826, IS-6380, IS-10418, IS-10810, ASTM D-2863 & 2843, IEC-754-1, IEEE-383, IEC-331, IEC-332- Part I & III, IEC 60287 (latest editions) and their amendments.
- 4.6) The cable shall also conform to other general requirements for Instrumentation cables under Clause 1 (1.2 through 1.11) & Clause 2 (E, H, J & L). The standard drum length shall be 1000 ± 5% meters, with balance quantity to complete the supply being given as a separate drum.
- 4.7) Color code of 3 core cable shall be as per IS 1554.
- 4.8) The color of inner sheath & outer sheath shall be black.
- 4.9) HV Test to be 3kV rms core to core for 5 min.

Test requirements as per Clause No. 5 under CE/416/NPCIL/CBL/IC-TC/TR



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5) TESTS

5.1) All cables shall be subject to Routine, Acceptance & Type Tests in line with the requirements under this specification.

5.2) Type Tests for Instrumentation, Thermocouple & Control cables Cables:

5.2.1) All Instrumentation, Thermocouple & control cables to be supplied will be of type tested quality. The list of type tests applicable for Instrumentation, Thermocouple & Control cables are given in table below this clause. Vendor is required to conduct type test for each size and type of cables specifically for this project witnessed by BHEL/Consultant/Customer even if type test reports are available. Test procedure has to be submitted for approval before conducting type test. It has to clearly specify test setup, instruments to be used, applicable standards, procedure, acceptance norms, recording of different parameters, interval of recording, etc.

TYPE TESTS FOR INSTRUMENTATION, THERMOCOUPLE & CONTROL CABLES

Sl. No.	Component	Test	Standard	Remarks
1	For Conductor (including drain wire)	Resistance test	BS 6360/IS 8130	
2		Elongation test	BS 6360/IS 8130	
3		Diameter test	BS 6360	
4		Tin coating test & continuity test (Persulphate test)	IS-8130	
5		Annealing test		
6		Solder test on tinning		
7	For EPR Insulation and LHLS Sheath (Inner & Outer)	Test for Thickness	IS 9968 Part I	
8		Tensile Strength & Elongation (before & after ageing)	IS 6380/ BS 6899	
9		Accelerate ageing test	IS 6380	
10		Loss of mass	IS 6380	
11		Hot set test	IS 6380	
12		Shrinkage test		
13		Stripping properties		Only for insulation
14		Thermal stability test		
15		Volume resistivity & water immersion test (at room & elevated temperature)		Only for insulation.
16		Oxygen Index & Temperature Index Test	ASTMD-2863	Only for sheath
17		Smoke Density Rating Test	ASTMD-2843	
18		Acid gas generation test	IEC-60754-1	
19		Toxicity index test	NES 713	

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Sl. No.	Component	Test	Standard	Remarks
20		Termite proof test	As per supplier's spec	
21		Acid gas generation test for fillers	IEC-60754-1	
22		Oxygen & Temperature index & Smoke density rating test for fillers	ASTMD-2863/ ASTMD-2843	
23	For Al-Mylar Shield	Continuity test		
24		Shield thickness test		
25		Overlap & coverage test		
26	On completed cables	Constructional Details (Conductor & drain wire - number of strands & diameter of strands, Twisting & Lay of pairs Thickness of Insulation and Sheath, Dia of Armor, overall diameter, color & marking on outer sheath, numbering of pairs, core color, band marking, unit identification, visual & surface finish etc.)	IS-10810	
27		Electrical Parameters (Mutual capacitance, Cross talk, Attenuation, Characteristic Impedance, capacitance unbalance)	VDE-0472	
28		Insulation resistance	IS 6380	At 27°C & at max rated temp.
29		Thermal EMF test	ANSI MC 96.1	Only for T/C cables.



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Sl. No.	Component	Test	Standard	Remarks
30		Measurement of capacitance between conductor of pairs and between conductor and shield	VG 95218-Part 66	
31		High Voltage test	1.5 Kv as per IS 9968 Part-I	
32		Noise Interference	IEEE Transactions	
33		Flammability test	IEEE-383, IEC-332	Also refer to clause 5.3.2 below
34		Swedish Chimney test	SEN-4241475	
35		Drain wire continuity		
36		Anti-rodent, anti-termite, anti-fungus, moisture retardant test on sheath		

5.2.2) With respect to the list of type tests in above table, relevant standards/reference document shall be referred to by the vendor in case there is no standard listed against any test(s) or the listed standard is not relevant/complete reference to the test(s) in context of this supply.

5.3. Acceptance Tests

5.3.1) The following acceptance tests shall be carried out on samples taken from the lot of each type of cable. The total number of drums of each type of cable offered at a time shall be treated as lot size. The sample size for the acceptance test shall be as per appendix -A of IS-8784.

ACCEPTANCE TESTS FOR INSTRUMENTATION, THERMOCOUPLE & CONTROL CABLES				
Sl. No	Component	Test	Standard	Remarks
1	Constructional details	Conductor Diameter, Thickness of Insulation and Sheath, Dia of Armour, Shield Thickness, Coverage and overlap of shield, overall diameter, marking on outer sheath, band marking, numbering of pairs, colour, continuity of drain wire & tin coating etc	As per applicable standard & approved datasheet.	

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Sl. No	Component	Test	Standard	Remarks
2	Electrical parameters	Mutual Capacitance, L/R ratio	As per applicable standard & approved datasheet	
		Capacitance unbalance test		
		Cross talk		
		Characteristic impedance		
		Attenuation		
3	EPR Insulation & LHLS Sheath	Tensile Strength & elongation test		
		Thermal stability test		
4	LHLS properties test	Oxygen index & temperature index test		
		Smoke density rating		
		Acid gas generation test		
		Toxicity Index test on sheath		
		Termite proof test on sheath		
5	Completed cables	Loop resistance test		
		Insulation resistance test		At 27° C
		Conductor resistance test (cable & Drain wire)		
		High Voltage test		
		Persulphate test		
		Flammability test		
		Swedish chimney test (Overall cable)		
		Length checking		
		Visual & Surface finish		
		Thermal EMF test (for T/C cable)		
		Measurement of mutual capacitance between cores and capacitance between any core and screen		



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5.3.2) Flammability Test

- a) This test shall be carried out as per IEEE-383, IEC— 332 part I and III. The cables installation to be tested shall consist of as many cables as necessary to give at least 10 Kg of Organic material per meter. The cables in the installation can be of any (or all) of the various types specified. However in case of failure to pass this test, the whole lot shall be subjected to rejection.
- b) The size of the cables (measured by total cross sectional area of the conductor) shall be that which has maximum organic material per sq.mm of total cross sectional area of all the conductors.

5.4) Routine Tests

5.4.1) The routine tests for Instrumentation, Thermocouple & Control Cables shall consist of the tests under Sl. No. 1, 36, 39 under the list of type tests in clause no. 5.2 above and are to be done on 100% drums.

5.5) The list of tests as given under sub clauses of clause 5 of this specification (above) has been prepared in line with Customer specification, however, these lists are for general/broad guidance of vendor, and the final list of tests with other details related to tests shall be as per the Customer/BHEL approved documents - approved Quality Plan & Datasheet.

5.6) Bidder shall include in his total bid price, the cost of carrying out all the type tests, if required; charges for conducting each of the type test shall be indicated separately for each type and size of the cables in the relevant bid proposal sheets and the total charges included in the bid price. BHEL/Customer at their discretion may ask the bidder to conduct any or all the type tests for which at least 15 days advance notice shall be given by the bidder. Charges for acceptance and routine tests shall be deemed to be included in the bid price of individual cables.

5.7) BHEL/Customer reserves the right to get the cables, type tested at their own expenses for any further tests to verify the compliance with the specifications. However BHEL/Customer reserves the right to waive any of the type tests in which case the test charges quoted will be taken for adjustment purposes.

5.8) TEST CERTIFICATES

The equipment/material shall be satisfactory & completely factory tested before shipment in accordance with the latest standards available. The tests specified in technical specification and/or any other tests which may be necessary to ensure that the equipment/material is satisfactory, shall be also be conducted. BHEL/Customer shall be supplied with certified test reports along with oscillograms if any, of all tests carried out on equipment/material

6. Information required after award of contract:

Five (5) copies of history docket in hard form and soft form will be furnished. It will contain copies of PO, shipping release, specification, drawings, QAP, procedures, raw material identification, test certificates etc.

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PROJECT: 1. KAPP – UNIT 3 & 4
2. RAPP – UNIT 7 & 8

CUSTOMER: M/S NPCIL

QUALITY PLAN FOR

INSTRUMENTATION, THERMOCOUPLE & CONTROL CABLES

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CHECKED & APPROVED

M. DHARMASHEKAR

PREPARED

ISSUED

DATE

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ARULJOTHI.G.D

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17/05/2016

QUALITY ASSURANCE PLAN FOR EPR INSULATED LHL SHEATHED UNARMoured INSTRUMENTATION CABLES (SAMPLE)

Sl. No. (1)	Component and Operations (2)	Characteristics (3)	Class (4)	TYPE OF CHECK (5)	QUANTUM OF CHECK (6)	REFERENCE DOCUMENT (7)	ACCEPTANCE NORMS (8)	FORMAT OF RECORDS (9)	AGENCY (10)			REMARKS (11)
									P	W	V	
1.0	RAW											
1.1	MATERIALS											
1.1.1	CONDUCTOR											
	Copper conductor & Drain Wire	Surface finish	B	Visual	Random sample	The conductor shall be smooth & free from scratches & burrs	The conductor shall be smooth & free from scratches & burrs.	T.C.	2	2	1	
		Diameter	B	Physical	One sample from lot of 10	BHEL Specification & IS-8130	BHEL Spec & IS-8130	-do-	2	2	1	
		Conductor Resistance at 20 deg.C	C	Electrical	bobbins/Baskets /Drums or part there- of	"	-do-	-do-	2	2	1	
		Annealing test (Cu)	C	Physical	"	"	"	-do-	2	2	1	
		Tinning test of Cu wire	C	Chemical	"	"	"	-do-	2	2	1	
1.2.	INSULATION											
	EPR (TYPE IE-2)	1. Type of Compound	C	Visual	One sample per Batch of 10 MT or part there of	Should be free from foreign particles IS-6380	Should be free from foreign particles IS-6380	T. C.	2	2	1	
		2. Tensile strength & Elongation	C	Physical	"	IS-10810 Part 7 & IS-6380	IS-6380	-do-	2	2	1	

QUALITY ASSURANCE PLAN FOR EPR INSULATED LHLs SHEATHED UNARMoured INSTRUMENTATION CABLES (SAMPLE)

Sl. No. (1)	Component and Operations (2)	Characteristics (3)	Class (4)	TYPE OF CHECK (5)	QUANTUM OF CHECK (6)	REFERENCE DOCUMENT (7)	ACCEPTANCE NORMS (8)	FORMAT OF RECORDS (9)	AGENCY (10)			REMARKS (11)
									P	W	V	
1.3	SHIELDING Polyester backed Al Tape	Visual Check of Tape Thickness Composition (Al+ Polyester)	A C C	Visual Physical Physical	Random Sample -do- -do-	Shall be smooth BHEL Specification -do-	Shall be smooth BHEL Specification -do-	T.C. -do- -do-	2 2 2	2 2 2	1 1 1	
1.4	SHEATH LHLs(Type-SE3)	Visual Check of material Type of compound Tensile strength of Elongation Oxygen index & temperature index Smoke density HCL emission Toxicity Index Termite proof	A C C C C C C C C	Visual Visual Visual Physical Physical Physical Chemical Chemical Chemical	Each lot one sample per batch of 10 MT or part thereof " " " " " " " " "	should be free from foreign particles IS-6380 IS-6380 & BS-6899 ASTM-D-2863/IS-10810-58 ASTM-D-2843/IS-10810-63 IEC-754-1/IS-10810-59 NES 713 Supplier specification.	should be free from foreign particles IS-6380 IS-6380 & BS-6899 BHEL Spec. " " " " Supplier specification.	-do- -do- -do- -do- -do- -do- -do- -do- -do-	2 2 2 2 2 2 2 2 2	2 2 2 2 2 2 2 2 2	1 1 1 1 1 1 1 1 1	

QUALITY ASSURANCE PLAN FOR EPR INSULATED LHL'S SHEATHED UNARMoured INSTRUMENTATION CABLES (SAMPLE)

Sl. No. (1)	Component and Operations (2)	Characteristics (3)	Class (4)	TYPE OF CHECK (5)	QUANTUM OF CHECK (6)	REFERENCE DOCUMENT (7)	ACCEPTANCE NORMS (8)	FORMAT OF RECORDS (9)	AGENCY (10)			REMARKS (11)
									P	W	V	
2.0	PROCESS INSPECTION											
2.2	Insulation	Type of insulation Compound Dimensions/Dia. Over conductor Dimensions/Dia. Over core Thickness of insulation (Avg. & Min) Spark Testing Surface Finish Colour	B B B C	Physical Physical Physical Physical Electrical Visual Visual	Each setting & once in a shift -do- " " " 100% Each setting -do-	Approved Data Sheet & BHEL Spec. " " " " IS-9968 Smooth and free from porosity BHEL Specification	Approved Data Sheet and BHEL Spec. " " " " IS-9968 Smooth and free from porosity BHEL Specification	T. C. -do- -do- -do- -do- -do- -do- -do-	2 2 2 2 2 2 2 2	2 2 2 2 2 2 2 2	1 1 1 1 1 1 1 1	

QUALITY ASSURANCE PLAN FOR EPR INSULATED LHLs SHEATHED UNARMoured INSTRUMENTATION CABLES (SAMPLE)

Sl. No. (1)	Component and Operations (2)	Characteristics (3)	Class (4)	TYPE OF CHECK (5)	QUANTUM OF CHECK (6)	REFERENCE DOCUMENT (7)	ACCEPTANCE NORMS (8)	FORMAT OF RECORDS (9)	AGENCY (10)			REMARKS (11)
									P	W	V	
2.3	PAIR Twisting	Sequence of Cores	C	Visual	Each setting & twice in a shift.	Approved data sheet	Approved data Sheet & NPCIL Spec.	-do-	2	2	1	
2.3.1		Colour Code	C	Physical	-do-	-do-	-do-	-do-	2	2	1	
		Pair numbering	C	Physical	-do-	-do-	-do-	-do-	2	2	1	
2.3.2	Laying-up	Direction of lay	C	Visual	-do-	Approved data sheet	Approved data sheet	-do-	2	2	1	
		Diameter over laidup	B	Physical	"	Approved data sheet	Approved data sheet	-do-	2	2	1	
		Lay Length	B	Physical	-do-	Approved data sheet	Approved data sheet	-do-	2	2	1	
2.4	Overall shielding	% age overlap/ coverage	C	Physical	-do-	BHEL Spec.	BHEL Spec.	-do-	2	2	1	
		Tape Dimensions	C	Physical	-do-	Approved data sheet	Approved data sheet	-do-	2	2	1	
		Size of Drain wire	B	Physical	-do-	BHEL Spec	BHEL Spec	-do-	2	2	1	

QUALITY ASSURANCE PLAN FOR EPR INSULATED LHLS SHEATHED UNARMoured INSTRUMENTATION CABLES (SAMPLE)

Sl. No. (1)	Component and Operations (2)	Characteristics (3)	Class (4)	Type of Check (5)	Quantum of Check (6)	Reference Document (7)	Acceptance Norms (8)	Format of Records (9)	Agency (10)			Remarks (11)
									P	W	V	
2.5	LHLS Sheath (Type SE3)	Type of LHLS Compound	C	Physical	Each setting & at random	IS-6380	IS-6380	T.C.	2	2	1	
		Thickness Average/Minimum	C	Physical	Each setting & twice in a shift	BHEL Spec.	BHEL Spec.	-do-	2	2	1	
		Dia over outer sheath	B	Physical	Each setting & twice in a shift	-do-	-do-	-do-	2	2	1	
		Colour	B	Visual	During setting & running	BHEL Spec.	Approved Data Sheet and BHEL Spec.	-do-	2	2	1	
		Surface finish	B	Visual	In each shift	Surface shall be smooth & free from porosity	surface should be smooth & free from porosity	-do-	2	2	1	
		Embossing/Printing/ Sequential Marking.	B	-do-	Each setting & twice in a shift	Approved Data Sheet and BHEL Spec.	Approved Data Sheet and BHEL Spec.	-do-	2	2	1	

QUALITY ASSURANCE PLAN FOR EPR INSULATED LHLs SHEATHED UNARMoured INSTRUMENTATION CABLES (SAMPLE)

Sl. No. (1)	Component and Operations (2)	Characteristics (3)	Class (4)	TYPE OF CHECK (5)	QUANTUM OF CHECK (6)	REFERENCE DOCUMENT (7)	ACCEPTANCE NORMS (8)	FORMAT OF RECORDS (9)	AGENCY (10)			REMARKS (11)
									P	W	V	
3.0	TYPE TESTS ON FINISHED CABLE											
3.1		Elongation test for cu	C	Physical	Random sample	IS-8130	IS-8130	TR	2	1,2	1	
3.2		Conductor resistance test	C	Electrical	-do-	IS-8130	IS-8130	-do-	2	1,2	1	
3.3		Dia of conductor	C	Physical	-do-	BHEL spec.	BHEL spec.	-do-	2	1,2	1	
3.4		Thickness of insulation and sheath	C	Physical	-do-	BHEL spec.	BHEL spec.	-do-	2	1,2	1	
3.5		Tensile & elongation on insulation & sheath	C	Physical	-do-	IS-6380 & BS-6899	IS-6380 & BS-6899	-do-	2	1,2	1	
3.6		Hot set test on insulation and sheaths	C	Physical	-do-	IS-6380	IS-6380	-do-	2	1,2	1	
3.7		Accelerated aging test on insulation and sheath	C	Physical	-do-	IS-6380	IS-6380	-do-	2	1,2	1	
3.8		Flame retardant test	C	Physical	-do-	SS-424-14-75/IS-10810-61	NPCIL spec.	-do-	2	1,2	1	

QUALITY ASSURANCE PLAN FOR EPR INSULATED LHLs SHEATHED UNARMoured INSTRUMENTATION CABLES (SAMPLE)

Sl. No. (1)	Component and Operations (2)	Characteristics (3)	Class (4)	TYPE OF CHECK (5)	QUANTUM OF CHECK (6)	REFERENCE DOCUMENT (7)	ACCEPTANCE NORMS (8)	FORMAT OF RECORDS (9)	AGENCY (10)			REMARKS (11)
									P	W	V	
3.9	TYPE TESTS ON FINISHED CABLE	HV test	C	Electrical	Random sample	IS-9968	IS-9968	TR	2	1,2	1	
3.10		IR test at 27°C and at max rated temperature	C	Electrical	-do-	IS-6380	IS-6380	-do-	2	1,2	1	
3.11		Dia of finished cable	C	Physical	-do-	Approved DS	Approved DS	-do-	2	1,2	1	
3.12		Tinning test for conductor & drain wire	C	Chemical	-do-	IS-8130	IS-8130	-do-	2	1,2	1	
3.13		Oxygen index on sheath	C	Physical	-do-	ASTM-D-2863/IS-10810-58	BHEL spec	-do-	2	1,2	1	
3.14		Temperature index on sheath	C	Physical	-do-	ASTM-D-2863/IS-10810-58	BHEL spec	-do-	2	1,2	1	
3.15		HCL emission on sheath	C	Physical	-do-	IEC-754-1/ IS-10810-59	BHEL Spec.	-do-	2	1,2	1	
3.16		Smoke density on sheath	C	Physical	-do-	ASTM-D-2863/IS-10810-63	BHEL Spec.	-do-	2	1,2	1	
3.17		Mutual capacitance between cores and between core & shield	C	Electrical	-do-	VG 95218-Part 66	Approved data sheet	-do-	2	1,2	1	
3.18		Toxicity Index	C	Chemical	-do-	NES 713	NES 713	-do-	2	1,2	1	
3.19		Termite proof	C	Chemical	-do-	Supplier specification.	Supplier specification.	-do-	2	1,2	1	

QUALITY ASSURANCE PLAN FOR EPR INSULATED LHS SHEATHED UNARMoured INSTRUMENTATION CABLES (SAMPLE)

[illegible]

QUALITY ASSURANCE PLAN FOR EPR INSULATED LHLs SHEATHED UNARMoured INSTRUMENTATION CABLES (SAMPLE)

Sl. No. (1)	Component and Operations (2)	Characteristics (3)	Class (4)	TYPE OF CHECK (5)	QUANTUM OF CHECK (6)	REFERENCE DOCUMENT (7)	ACCEPTANCE NORMS (8)	FORMAT OF RECORDS (9)	AGENCY (10)	REMARKS (11)
									P W V	
5.7	ACCEPTANCE TESTS	Temperature index on sheath	C	Physical	Samples as per IS-9968 Part I	ASTM-D-2863/IS-10810-58	BHEL Spec.	TR	2 1,2 1	
5.8		Smoke density on sheath	C	Physical	-do-	ASTM-D-2843/IS-10810-63	BHEL Spec.	TR	2 1,2 1	
5.9		HCL emission on sheath	C	Physical	-do-	IEC-754-1/IS-10810-59	BHEL Spec.	TR	2 1,2 1	
5.10		Toxicity Index	C	Chemical	-do-	NES 713	NES 713	TR	2 1,2 1	
5.11		Termite proof	C	Chemical	-do-	Supplier specification.	Supplier specification.	TR	2 1,2 1	
5.12		Measurement of capacitance between cores and between cores and shield	C	Electrical	-do-	VG 95218-Part 66	Approved data sheet	TR	2 1,2 1	
5.13		O.D. of Cable	C	Physical	-do-	Approved DS	Approved DS	TR	2 1,2 1	
5.14		Flame retardant test	C	Physical	-do-	SS-424-14-75(F3)/IS-10810-61	SS-424-14-75(F3)/IS-10810-61	TR	2 1,2 1	
5.15		Embossing on the cable	B	Visual	-do-	NPCIL Spec.	NPCIL Spec.	TR	2 1,2 1	

LEGEND:

P	:	Performed by	A	:	Minor	1	:	Purchaser (NPCIL & BHEL)
W	:	Witnessed by	B	:	Major	2.	:	Prime Supplier
V	:	Verified by	C	:	Critical	3.	:	External Laboratory
			TC	:	Test Certificate			
			T.R.	:	Test Report			

QUALITY ASSURANCE PLAN FOR THERMOCOUPLE EXTENSION CABLES (SAMPLE)

Sl. No (1)	Component and Operations (2)	Characteristics (3)	Class (4)	TYPE OF CHECK (5)	QUANTUM OF CHECK (6)	REFERENCE DOCUMENT (7)	ACCEPTANCE NORMS (8)	FORMAT OF RECORDS (9)	AGENCY (10)			REMARKS (11)
									P	W	V	
2.0	PROCESS INSPECTION											
2.1	Insulation	Type of insulation compound	B	Physical	Each setting & once in a shift	Approved Data Sheet & BHEL Spec.	Approved Data Sheet & BHEL Spec.	T.C.	2	2	1	
		Dimensions/Dia. Over conductor	B	Physical	-do-	"	"	-do-	2	2	1	
		Dimensions/Dia. Over Core	B	Physical	"	"	"	-do-	2	2	1	
		Thickness of insulation (Avg. & Min.)	C	Physical	"	"	"	-do-	2	2	1	
		Spark Testing Surface Finish		Electrical Visual	100% Each setting	IS-9968 Smooth and free from porosity	IS-9968 Smooth and free from porosity	-do-	2	2	1	
		Colour		Visual	-do-	BHEL Specification	BHEL Specification	-do-	2	2	1	

QUALITY ASSURANCE PLAN FOR THERMOCOUPLE EXTENSION CABLES (SAMPLE)

Sl. No (1)	Component and Operations (2)	Characteristics (3)	Class (4)	TYPE OF CHECK (5)	QUANTUM OF CHECK (6)	REFERENCE DOCUMENT (7)	ACCEPTANCE NORMS (8)	FORMAT OF RECORDS (9)	AGENCY (10)			REMARKS (11)
									P	W	V	
2.2	PAIR Twisting	Sequence of Cores	C	Visual	Each setting & twice in a shift	Approved data sheet	Approved data sheet & BHEL spec.	-do-	2	2	1	
2.2.1		Colour Code	C	Physical	-do-	-do-	-do-	-do-	2	2	1	
2.2.2	Laying-up	Direction of lay	C	Visual	-do-	Approved data sheet	Approved data sheet	-do-	2	2	1	
		Diameter over laidup	B	Physical	-do-	Approved data sheet	Approved data sheet	-do-	2	2	1	
2.3	Overall shielding	Lay length	B	Physical	-do-	Approved data sheet	Approved data sheet	-do-	2	2	1	
		%age overlap/ coverage	C	Physical	-do-	BHEL Spec.	BHEL Spec.	-do-	2	2	1	
		Tape Dimensions	C	Physical	-do-	Approved data sheet	Approved data sheet	-do-	2	2	1	
		Size of Drain Wire	B	Physical	-do-	BHEL Spec.	BHEL Spec.	-do-	2	2	1	

QUALITY ASSURANCE PLAN FOR THERMOCOUPLE EXTENSION CABLES (SAMPLE)

SL No	Component and Operations (2)	Characteristics (3)	Class (4)	TYPE OF CHECK (5)	QUANTUM OF CHECK (6)	REFERENCE DOCUMENT (7)	ACCEPTANCE NORMS (8)	FORMAT OF RECORDS (9)	AGENCY (10)			REMARKS (11)
									P	W	V	
2.4	LHLS Sheath (Type SE 3)	Type of Compound	C	Physical	Each setting & at random	IS-6380	IS-6380	T.C.	2	2	1	
		Thickness of Average / Minimum	C	Physical	Each setting & twice in a shift	BHEL -Spec.	BHEL -Spec.	-do-	2	2	1	
		Dia over outer sheath	B	Physical	Each setting & twice in a shift	Approved DS	Approved DS	-do-	2	2	1	
		Colour	B	Visual	During setting & running	BHEL Spec.	BHEL Spec.	-do-	2	2	1	
		Surface finish	B	Visual	In each shift	Surface shall be smooth & free from porosity	Surface shall be smooth & free from porosity	-do-	2	2	1	
		Embossing/Printing/ Sequential Marking	B	-do-	Each setting & twice in a shift	Approved Data Sheet and BHEL spec.	Approved Data Sheet and BHEL spec.	-do-	2	2	1	

QUALITY ASSURANCE PLAN FOR THERMOCOUPLE EXTENSION CABLES (SAMPLE)

Sl. No (1)	Component and Operations (2)	Characteristics (3)	Class (4)	TYPE OF CHECK (5)	QUANTUM OF CHECK (6)	REFERENCE DOCUMENT (7)	ACCEPTANCE NORMS (8)	FORMAT OF RECORDS (9)	AGENCY (10)			REMARKS (11)
									P	W	V	
3.0	TYPE TEST ON FINISHED CABLE	Loop resistance	C	Electrical	Random sample	Manufacturer's standard BHEL Spec. BHEL Spec.	Approved Manufacturer's standard BHEL spec. BHEL spec.	TR	2	1,2	1	
3.1		Dia of conductor	C	Physical	-do-			-do-	2	1,2	1	
3.2		Thickness of insulation and sheath	C	Physical	-do-			-do-	2	1,2	1	
3.3		Tensile & elongation on insulation & sheath	C	Physical	-do-	IS-6380	IS-6380	-do-	2	1,2	1	
3.4		Hot set test on sheaths	C	Physical	-do-	IS-6380	IS-6380	-do-	2	1,2	1	
3.5		Accelerated aging test on insulation and sheath	C	Physical	-do-	IS-6380	IS-6380	-do-	2	1,2	1	
3.6		Flame retardant test	B	Physical	-do-	SS-124-14-75/IS-10810-61	BHEL Spec.	-do-	2	1,2	1	
3.7		H.V. test	C	Electrical	-do-	IS-9968	IS-9968	-do-	2	1,2	1	

QUALITY ASSURANCE PLAN FOR THERMOCOUPLE EXTENSION CABLES (SAMPLE)

Sl. No (1)	Component and Operations (2)	Characteristics (3)	Class (4)	TYPE OF CHECK (5)	QUANTUM OF CHECK (6)	REFERENCE DOCUMENT (7)	ACCEPTANCE NORMS (8)	FORMAT OF RECORDS (9)	AGENCY (10)			REMARKS (11)
									P	W	V	
3.9	TYPE TESTS ON FINISHED CABLE	IR test at 27°C and at max rated temperature	C	Electrical	Random sample	IS-6380	IS-6380	TR	2	1,2	1	
3.10		Dia of finished cable	C	Physical	-do-	Approved DS	Approved DS	-do-	2	1,2	1	
3.11		Tinning test for drain wire	C	Chemical	-do-	IS-8130	IS-8130	-do-	2	1,2	1	
3.12		Thermo emf characteristic test	C	Electrical	-do-	ANSI-C96.1	ANSI-C96.1	-do-	2	1,2	1	
3.13		Oxygen index on sheath	C	Physical	-do-	ASTM-D-2863/ IS-10810-58	BHEL spec	-do-	2	1,2	1	
3.14		Temperature index on sheath	C	Physical	-do-	ASTM-D-2863/ IS-10810-58	BHEL spec	-do-	2	1,2	1	
3.15		HCL emission on sheath	C	Physical	-do-	IEC-754-1/IS-10810-59	BHEL spec	-do-	2	1,2	1	
3.16		Toxicity index test on sheath	C	Chemical	-do-	NES 713	NES 713	-do-	2	1,2	1	
3.17		Termite proof test on sheath	C	Chemical	-do-	Manufacturer's specification	Manufacturer's specification	-do-	2	1,2	1	

QUALITY ASSURANCE PLAN FOR THERMOCOUPLE EXTENSION CABLES (SAMPLE)

Sl. No (1)	Component and Operations (2)	Characteristics (3)	Class (4)	TYPE OF CHECK (5)	QUANTUM OF CHECK (6)	REFERENCE DOCUMENT (7)	ACCEPTANCE NORMS (8)	FORMAT OF RECORDS (9)	AGENCY (10)			REMARKS (11)
									P	W	V	
3.18	TYPE TESTS ON FINISHED CABLE	Smoke density on sheath	C	Physical	Random sample	ASTM-D-2863/ IS-10810-63	BHEL Spec.	-do-	2	1,2	1	
3.19		Mutual Capacitance between cores and between core & earth	C	Electrical	-do-	BS-5308 / IS-5608 or equivalent	Approved data sheet	-do-	2	1,2	1	

QUALITY ASSURANCE PLAN FOR THERMOCOUPLE EXTENSION CABLES (SAMPLE)

Sl. No	Component and Operations	Characteristics	Class	Type of Check	Quantum of Check	Reference Document	Acceptance Norms	Format of Records	Agency (10)			Remarks (11)
									P	W	V	
4.0	ROUTINE TESTS	Loop resistance test	C	Electrical	100%	IS-8130 Manufacturer's standard	Approved Manufacturer's standard	TR	2	1,2	1	
4.1												
4.2									2	1,2	1	
4.3	ACCEPTANCE TEST	H.V. test	C	Electrical	100%	IS-9968	IS-9968	TR	2	1,2	1	
5.0		IR test	C	Electrical	100%	IS-6380	IS-6380	TR	2	1,2	1	
5.1		O.D. of cable	C	Physical	Samples as per IS-9968 Part-I	Approved DS	Approved DS	TR	2	1,2	1	
5.2		Loop resistance test	C	Electrical	-do-	Manufacturer's standard	Manufacturer's standard	TR	2	1,2	1	
5.3		Thickness of insulation and sheath	C	Physical	-do-	BHEL spec	BHEL spec	TR	2	1,2	1	
5.4		IR at 27°C	C	Electrical	-do-	IS-6380	IS-6380	TR	2	1,2	1	
5.5		H.V. Test	C	Electrical	-do-	IS-9968	IS-9968	TR	2	1,2	1	
5.6		Oxygen index on sheath	C	Physical	-do-	ASTM-D-2863/ IS-10810-58	BHEL Spec.	TR	2	1,2	1	
5.7		Temperature index on sheath	C	Physical	-do-	ASTM-D-2863/ IS-10810-58	BHEL Spec.	TR	2	1,2	1	

QUALITY ASSURANCE PLAN FOR THERMOCOUPLE EXTENSION CABLES (SAMPLE)

Sl. No (1)	Component and Operations (2)	Characteristics (3)	Class (4)	TYPE OF CHECK (5)	QUANTUM OF CHECK (6)	REFERENCE DOCUMENT (7)	ACCEPTANCE NORMS (8)	FORMAT OF RECORDS (9)	AGENCY (10)			REMARKS (11)
									P	W	V	
5.8	ACCEPTANCE TESTS	Smoke density on sheath	C	Physical	Samples as per IS-9968 Part-I	ASTM-D-2843 /IS-10810-63	BHEL Spec.	TR	2	1,2	1	
5.9		HCL emission on sheath	C	Chemical	-do-	IEC-754/IS-10810-59	BHEL Spec.	TR	2	1,2	1	
5.10		Toxicity index test on sheath	C	Chemical	-do-	NES 713	NES 713	TR	2	1,2	1	
5.11		Measurement of capacitance between cores and between cores and earth	C	Electrical	-do-	BS-5308 / IS-5608 or equivalent	Approved data sheet	TR	2	1,2	1	
5.12		Thermo emf characteristic test	C	Electrical	-do-	ANSI-C96.1	ANSI-C96.1	TR	2	1,2	1	
5.13		Embossing on the cable	B	Visual	-do-	BHEL Spec.	BHEL Spec.	TR	2	1,2	1	
5.14		Termite proof test on sheath	C	Chemical	-do-	Manufacturer specification	Manufacturer specification	TR	2	1,2	1	

LEGEND:

P	:	Performed by	A	:	Minor	1	:	Purchaser (NPCIL & BHEL)
W	:	Witnessed by	B	:	Major	2	:	Prime Supplier
V	:	Verified by	C	:	Critical	3	:	External Laboratory
	:		TC	:	Test Certificate		:	
	:		TR	:	Test Report		:	



ಭಾರತ್ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್ भारत हेवी इलेक्ट्रिकल्स लिमिटेड

Bharat Heavy Electricals Ltd.,
(A Government of India undertaking)
Electronics Division
PB 2606 , Mysore Road Bangalore , 560026 INDIA

CE: PR: 003- Rev 00

SPECIAL COMMERCIAL CONDITIONS OF CONTRACT

Reference is brought to BHEL's Instructions to Bidders (Document Ref: CE: PR: 001- Rev 00) and General Commercial Conditions for Contract (Document Ref: CE: PR: 002- Rev 00). These documents along with required annexures are available in our website: -----
----- .These two documents along with Special Conditions of Contract annexed to this RFQ will form an integral part of the contract as and when the RFQ culminates into a Purchase Order / Contract.

RFQ No: NKG0000692 RFQ Date: XX XX. 2016 Due Date: AS per EPS Project: Kakrapar Atomic Power Project. Unit 3&4
and RAJASTHAN ATOMIC POWER PROJECT- unit 7 & 8

Item Description: INSTRUMENTATION, CONTROL AND THERMOCOUPLE CABLES

Purchase Executives: In cases where tender documents are bulky, or due to some reasons tender documents are required to be submitted by hand, the offers are to be handed over to either of the following Purchase Officers: **Mr. NEELKANT GHODE**

E-mail IDs: In case offers are sent through E-mail, please send the offers to both of the following email IDs:
neelkantghode@bheledn.co.in

E-tendering: **Applicable** / Not Applicable.

Reverse Auction: Not Applicable / Will be intimated during commercial clarifications to technically acceptable vendors.
In case BHEL does not resort to Reverse Auction, the price bids and price impacts (if any) shall be opened as per BHEL's standard practice.

Splitting of tendered quantity to MSE vendors: The tendered quantity will/will not be split to MSE vendors subject to submission of relevant documents by vendors. Refer clause H of Instructions to Bidders for conditions applicable and for information on documents to be submitted.

Destination: Items are to be directly despatched to BHEL's Site Office or Stores/Customer's Stores located in **GUJARAT** and **Rajasthan** State. Road Permit, if applicable, will be issued by BHEL along with Despatch Clearance.

Project Benefits:

- **Indigenous scope of supply:**
 - a) Project is Mega Power Project or Ultra Mega Power Project: Eligible for "NIL" Excise Duty. Necessary documents for availing Excise Duty exemption by suppliers will be furnished by BHEL.
 - b) Physical Export project: Eligible for complete exemption of Excise Duty & Sales Tax. Necessary documents for availing such benefits will be furnished by BHEL to suppliers.
 - c) Nuclear Power Project under a special category: Eligible for claiming Terminal Excise Duty benefit from DGFT as per present EXIM policy. Confirm submission of following in original:
 - Disclaimer Certificate (Annexure -XI)
 - Copy of Excise Invoice attested by Suptd of Central Excise authorities with signature and seal, in blue ink, to enable BHEL to claim terminal Excise duty benefit from DGFT.
- **Imported scope of supply:**
 - a) Project is Mega Power Project or Ultra Mega Power Project: Eligible for "NIL" Customs Duty.
 - b) Physical Export project: Eligible for complete exemption of Customs Duty.

Terms of Delivery:

Indicate station of despatch: _____

Indicate place of manufacturing (wherever applicable): _____ □

Indigenous scope of supply: Ex-works (including Packing & Forwarding charges but excluding Taxes & Duties): _____

- **Imported scope of supply:** F.C.A. (for air consignments) /F.O.B. (for sea consignments)
(Including Packing, Forwarding, Handling, Ancillary charges like processing of Sight Draft/ Letter of Credit, negotiation of bank Documents, Export declaration, Country of Origin etc.): _____

S NO.	TERMS	BHEL ACCEPTABLE TERM	BIDDER'S CONFIRMATION	DEVIATION IF ANY
01	Validity	The offer will be valid for a period of 120 days from the date of technical bid opening.	AGREE	
02	Excise Duty & Cess	If applicable, indicate current rate of Excise Duty and maximum rate of Excise Duty (against proof of Excise Invoice). However, for calculation purpose and arriving at "Total Cost to BHEL" maximum rate of Excise Duty will be considered. In case Excise Duty remains firm throughout the contract, the same shall be specifically indicated. Otherwise, maximum Excise Duty will be considered for arriving at lowest bidder. However, reimbursement of Excise Duty shall be at actuals against proof of Excise Invoice only. (Within contractual delivery). Physical export contract eligible for complete exemption of Excise duty against submission of necessary documents by BHEL like ARE-1/CT-1 form.	APPLICABLE / NOT APPLICABLE Present rate of Excise Duty with CESS% Maximum rate of Excise Duty with CESS%	
03	Central Sales Tax (CST)	If applicable, indicate current rate of sales tax against form "C". For issue of original form "C", vendor has to furnish "E1/E2" form. To enable vendor give E1/E2 form, photocopy of C form will be issued by BHEL. Please confirm submission of "E1/E2 Sale form". For physical export project, Sales Tax is exempted against necessary documents furnished by BHEL.	APPLICABLE / NOT APPLICABLE Present Sales Tax rate against form "C" % CONFIRMED	
04	Value Added Tax (VAT)	If applicable, indicate current rate of VAT. When VAT is applicable, BHEL ROD's/ Nodal Agency's Name, TIN No. and address to be indicated in invoice. (Note that two original invoice and one tax invoice should be submitted to BHEL).	APPLICABLE / NOT APPLICABLE VAT rate at present % NOTED	
05	Octroi	If applicable, indicate current rate of octroi.	AGREE Present Octroi rate%	

06	Freight Charges (for indigenous scope of supply)	Freight charges shall be to vendor's account. Quote lumpsum reasonable Freight charges separately in priced offer, plus service tax if any. Vendor's offer will be evaluated on "Total cost basis" including freight charges. Vendor shall book the consignment through their approved Road carriers on "Freight pre-paid" and door delivery consignee copy attached basis. Freight charges to be claimed from BHEL along with POD (Proof of Delivery) on original L/R.	AGREED And quoted as lumpsum amount in price bid. Service Tax _____% (extra /inclusive in freight charges)	
07	Service Tax on E&C and Training Charges	If applicable, indicate current rate of Service Tax _____% Service Tax Regn. No. _____ Confirmation that Service Tax register is maintained.	APPLICABLE / NOT APPLICABLE CONFIRMED	
08	Parting of license for imported raw materials	In case of Mega project, Ultra Mega project and Physical Export project where Custom Duty and Excise Duty are NIL and vendor is importing any raw materials -/	AGREE	

		components for the enquired item, same are eligible for Zero Customs duty. As per EXIM policy, BHEL will part the import licence with the vendors to obtain import licence by themselves and custom clear the raw materials/ components by availing zero customs duty. Hence, please furnish list of raw materials / components to be imported by you with Quantity and CIF value (for which BHEL has to share import licence). The benefit due to the above shall be passed on to BHEL and confirmed in the quotation. If there are no imported raw materials/components, same shall be confirmed in the offer.	— CIF value ————— Yes, benefit passed on to BHEL in the price quotation. We confirm that there are no imported components.	
09	Delivery Period	Within 12 weeks from the date of issue of approved or documents manufacturing clearance by BHEL, later, whichever	AGREE weeks	
10	Guarantee/ Warranty	24 months from the date of delivery of goods or 18 Months from the date of commissioning of goods, whichever is earlier.	AGREE	
11	Inspection agency	Materials will be inspected by : - BHEL - Customer/Consultant/BHEL nominated Third Party Inspection Agency (TPIA)	AGREE	

12	Terms of Payment at the time of material supply	Refer Clause "F" of Instructions to Bidder for BHEL standard Payment terms and loading factors applicable for non-compliance against payment terms: Indigenous Scope: a)Supply with E&C b)Supply with Supervision of E&C c) Supply only Imported Scope: d)Supply with E&C e)Supply with Supervision of E&C f) Supply only Note: Kindly indicate if High Sea Sales will be operated. If yes, confirm submission of relevant documents as per Annexure V.	AGREE YES / NO CONFIRMED	
13	Performance Bank Guarantee (PBG)	PBG will be applicable for a period of 36 months + claim period of 6 months for a value equal to 10% of the basic value of the purchase order. Refer Clause "G" of Instructions to Bidders.	AGREE	
14	Terms of Payment not related to material supply	For Trainings: 100% will be paid in 45 days from the date of completion of Training or 15 days from the date of submission of complete set of documentation, whichever is later. Separate invoice shall be submitted for Training charges along with documentary evidence. For Engineering & Documentation Charges: 100% will be paid in 45 days from the date of approval of final documents or 15 days from the date of submission of invoice, whichever is later. Separate invoice to be submitted for Engineering & documentation charges.	AGREE	
15	Mode of despatch	Indigenous Scope: By Road on Door Delivery Consignee Copy attached basis through your approved transporter (unless otherwise indicated in Despatch Instructions), only on receipt of Despatch Clearance from BHEL. Imported Scope: By Air/Sea through BHEL approved Consolidator/Freight Forwarder, only on receipt of Despatch Clearance from BHEL.	AGREE	
16	Despatch	Complete set of despatch documents (original + 1	AGREE	

	Documents	photocopy set) as per Purchase Order shall be forwarded to BHEL directly. Depending upon the project/customer demands, despatch documents may include one or more documents from the following: Commercial Invoice, Excise Invoice (if ED is applicable), Lorry Receipt (L/R), Packing List, Air Way Bill (AWB), Country of origin certificate, Warranty Certificate, Insurance Intimation letter, NIL Short Shipment Certificate, Original Performance Bank Guarantee (directly from issuing bank to BHEL), POD (Proof of Delivery) on original L/R, Disclaimer Certificate (as per BHEL format attached as Annexure XI) along with ER-1 form & attested excise invoice (as per project demands like Nuclear Power plant) etc. The precise list of despatch documents needed for a particular project will be specified in the Purchase Order. One set of Invoice, Packing List and L/R or AWB shall be e-mailed/faxed immediately to BHEL-EDN after despatch.		
17	O & M Manuals	As built Drawings, O & M Manuals and other approved documents shall be furnished in required no. of sets as per Specification/Purchase Order. Note: Supply of above documents (O&M) in required no. of sets along with material shall be indicated in packing list. If not mentioned BHEL may insist for submission in required sets once again.	AGREE	
18	Quantity Tolerance	If applicable, indicate Quantity tolerance for each of the line item. For Impulse/seamless/ GI pipes one random length applicable for each variety of pipes.	CONFIRMED	Quantity Tolerance % Per Variety
19	Evaluation criteria for tendered item	Package wise evaluation of tendered item. Order will be placed on Package wise L1 vendor. PACKAGE-I INSTRUMENTATION CONTROL CABLE PACKAGE -II THERMOCOUPLE CABLE OR Items will not be split on item wise lowest offer. Items to be evaluated and procured as a package.	AGREE	
20	Integrity Commitment	Integrity commitment will be applicable in the tender process and execution of contracts as mentioned in clause "I" of Instructions to Bidders. IEM NAME: SRI V V RSASTRY,EXCMD,BEL._	AGREE	

THE ENCLOSED INTGRETY PACT AGREEMENT FORMAT TO BE FILLED, SIGNED AND SUBMITTED ALONG WITH PART 1 PQCBID

With this, it is inferred that vendor has understood and accepts all terms & conditions as indicated in Instructions to Bidders (Document Ref: CE: PR: 001- Rev 00) & General Commercial Conditions for Contract (Document Ref: CE: PR: 002- Rev 00).

VENDOR'S SIGNATURE WITH SEAL

NOTE: *The above filled-in and signed-sealed document (in original) shall be furnished as part of Part-I Bid without fail. If no deviations are brought, it will be treated as if all terms and conditions of this enquiry are accepted by vendor without any deviation.*



ಭಾರತ್ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್
भारत हेवी इलेक्ट्रिकल्स लिमिटेड

Bharat Heavy Electricals Ltd.,
(A Government of India undertaking)
Electronics Division

PB 2606 , Mysore Road Bangalore , 560026 INDIA

CE: PR: 001- Rev 00

INSTRUCTIONS TO BIDDERS (Common for all RFQs)

Bidder is requested to read the instructions carefully and submit their quotation covering all the points:

A. GENERAL INSTRUCTIONS:

1. Any Purchase Order resulting from this enquiry shall be governed by the Instructions to Bidders (document reference: CE: PR: 001 – Rev 00), General Conditions of Contract (document reference: CE: PR: 002 - Rev 00) and Special Conditions of Contract, if any, of the enquiry.
2. Any deviations from or additions to the “General Conditions of Contract” or “Special Conditions of Contract” require BHEL’s express written consent. The general terms of business or sale of the bidder shall not apply to this tender.
3. Bidders (also includes the term suppliers / contractors wherever used in this document) are instructed to quote their most competitive price and best delivery, etc. in the offer. Prices should be indicated in both figures & words. **(Please also refer clause 11 under section B)**
4. Regret letter (either through post or by mail) indicating reasons for not quoting must be submitted without fail, in case of non-participation in this tender. If a bidder fails to respond against 3 consecutive tenders for the same item, he will be liable for removal as a registered vendor of BHEL.
5. Procurement directly from the manufacturers shall be preferred. However, if the OEM / Principal insist on engaging the services of an agent, such agent shall not be allowed to represent more than one manufacturer / supplier in the same tender. Moreover, either the agent could bid on behalf of the manufacturer / supplier or the manufacturer / supplier could bid directly but not both. In case bids are received from the manufacturer / supplier and his agent, bid received from the agent shall be ignored.
6. Consultant / firm (and any of its affiliates) shall not be eligible to participate in the tender/s for the related goods for the same project if they were engaged for consultancy services for the same project.
7. If an Indian representative / associate / liaison office quotes on behalf of a foreign based bidder, such representative shall furnish compulsorily the following documents:
 - a. Authorization letter to quote and negotiate on behalf of such foreign-based bidder.
 - b. Undertaking from such foreign based bidder that such contract will be honored and executed according to agreed scope of supply and commercial terms and conditions.
 - c. Undertaking shall be furnished by the Indian representative stating that the co-ordination and smooth execution of the contract and settlement of shortages / damages / replacement / repair of imported scope till system is commissioned and handed over to customer will be the sole responsibility of the Indian representative / associates / agent / liaison office.
 - d. Refer **Annexure X** on “Guidelines for Indian Agents”.
8. In case of imported scope of supply, customs clearance & customs duty payment will be to BHEL account after the consignment is received at Indian Airport / Seaport. Bidders must provide all original documents required for completing the customs clearance along with the shipment. Warehousing charges due to

incomplete or missing documentation will be recovered from the supplier's bill. All offers for imported scope of supply must be made from any of the gateway ports (within the country) indicated. **(Refer Annexure I)**

9. The offers of the bidders who are on the banned list and also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of the banned firms is available on BHEL website: **www.bhel.com**
10. Business dealings with bidders will be suspended if they are found to have indulged in any malpractices / misconduct which are contrary to business ethics like bribery, corruption, fraud, pilferage, cartel formation, submission of fake/false/forged documents, certificates, information to BHEL or if they tamper with tendering procedure affecting the ordering process or fail to execute a contract, or rejection of 3 consecutive supplies or if their firms / works are under strike / lockout for a long period.

B. GUIDELINES FOR PREPARATION OF OFFER:

1. Quotation shall be submitted in Single Part Bid, Two Part Bid or Three Part Bid, as called for in the tender:
 - **SINGLE PART BID:** Technical and Commercial Bid with prices along with price summary & filled in BHEL Standard Commercial terms and conditions in a single sealed envelope.
 - **TWO PART BID:** Unpriced offer i.e. "Techno-commercial Bid" with filled in BHEL Standard Commercial terms and conditions in a sealed envelope **along with the copy of the "Price Bid" without the prices** should be enclosed in one cover and the cover must be super scribed "**Techno-commercial offer**) and Priced offer i.e. "Price Bid" containing price summary in a separate sealed envelope and must be super scribed "**Price Bid**". Both these envelopes shall be enclosed in a single sealed envelope super scribed with enquiry number due date of tender and any other details as called for in the tender document.
 - **THREE PART BID:** Pre-qualification Bid (Part-I), Techno Commercial Bid with filled in BHEL Standard Commercial terms and conditions (Part-II), and Price Bid (Part-III). All three envelopes shall be enclosed in a single sealed envelope super scribed with enquiry number due date of tender and any other details as called for in the tender document.

If any of the offers (Part I, Part II or Part III) are not submitted before the due date and time of submission or if any part of the offer is incomplete the entire offer of the bidder is liable for rejection.

2. Supplier shall ensure to super scribe each envelope with RFQ number, RFQ Date, RFQ Due date and time, Item Description and Project clearly & boldly. Also mention on the envelope whether it is "Techno Commercial Bid" or "Price Bid" or "Pre-Qualification Bid". Please ensure complete address, department name and purchase executive name is mentioned on the envelope (before dropping in the tender box or handing over) so that the tender is available in time for bid opening.
3. BHEL standard Commercial Terms and Conditions (duly filled, signed & stamped) must accompany Technical-Commercial offer without fail and should be submitted in original only. Xerox copy will not be accepted.
4. Any of the terms and conditions not acceptable to supplier, shall be explicitly mentioned in the Techno-Commercial Bid. If no deviations are brought out in the offer it will be treated as if all terms and conditions of this enquiry are accepted by the supplier without deviation.
5. Deviation to this specification / item description, if any, shall be brought out clearly indicating "DEVIATION TO BHEL SPECIFICATION" without fail, as a part of Techno-Commercial Bid. If no deviations are brought out in the offer it will be treated as if the entire specification of this enquiry is accepted without deviation.
6. Suppliers shall submit one set of original catalogue, datasheets, bill of materials, dimensional drawings, mounting details and / or any other relevant documents called in purchase specification as part of Technical Bid.
7. "Price Bid" shall be complete in all respects containing price break-up of all components along with all

applicable taxes and duties, packing & forwarding charges (if applicable), freight charges (if applicable) etc. Once submitted no modification / addition / deletion will be allowed in the "Price Bid." Bidders are advised to thoroughly check the unit price, total price to avoid any discrepancy.

8. In addition, bidder shall also quote for erection & commissioning charges (E&C charges), documentation charges, service charges, testing Charges (type & routine), training charges, service tax, etc. wherever applicable. The price summary must indicate all the elements clearly.
9. Vendors should indicate "lump sum" charges (including To & Fro Fare, Boarding, Lodging, Local Conveyance etc.) for Supervision of Erection, Commissioning and handing over to customer. The quotation shall clearly indicate scope of work, likely duration of commissioning, pre-commissioning checklist and service tax (if any).
10. Wherever bidders require PAC (Project Authority Certificate) for import of raw materials, components required for Mega Power Projects, Export Projects or other similar projects wherein supplies are eligible for customs duty benefits, lists and quantities of such items and their values (CIF) has to be mentioned in the offer. Prices must be quoted taking into account of such benefits.
11. All quotations shall be free from corrections /overwriting. Corrections if any should be authenticated with signature and seal. Any typographical error, totaling mistakes, currency mistake, multiplication mistake, summing mistakes etc. observed in the price bids will be evaluated as per **Annexure II** "Guidelines for dealing with Discrepancy in Words & Figures – quoted in price bid". BHEL decision will be final.

C. GUIDELINES FOR OFFER SUBMISSION:

1. Offers / Quotations must be dropped in tender box before 13.00 Hrs. on or before due date mentioned in RFQ. The offers are to be dropped in the proper slot of the Tender Box kept in our reception area with caption "CE, SC&PV, DEFENCE." Tenders are opened on 3 days in a week (Monday/Wednesday/Friday). Tender must be deposited in the slot corresponding to the day (Monday - Box no.4/Wednesday - Box no. 6 /Friday - Box no.8) while depositing the offer. **(This clause will not be applicable for e-tenders)**
2. E-Mail / Internet / EDI offers received in time shall be considered only when such offers are complete in all respects. In case of offers received through E-mail, please send the offer to the email ID specified in the SCC of the tender. (Refer to SCC document of tender)
3. In cases where tender documents are bulky, or due to some reasons tender documents are required to be submitted by hand or through posts/couriers, the offers are to be handed over either of the two officers whose names are mentioned in the RFQ. (Refer to SCC document of tender)
4. Tenders will be opened on due date, time and venue as indicated in the RFQ in the presence of bidders at the venue indicated in the RFQ. In case of e-procurement, bidders can see tender results till seven days after due date and time.
5. Vendor will be solely responsible:
 - a. For submission of offers before due date and time. Offers submitted after due date and time will be treated as "Late offers" and will be rejected.
 - b. For submission of offers in the correct compartment of the tender box based on the day of due date (Monday/Wednesday/Friday). Please check before dropping your offer in the correct tender box.
 - c. For depositing offers in proper sealed condition in the tender box. If the bidder drops the tender in the wrong tender box or if the tender document is handed over to the wrong person BHEL will not be responsible for any such delays.
 - d. For offers received through email etc., suppliers are fully responsible for lack of secrecy on information and ensuring timely receipt of such offers in the tender box before due date & time.
 - e. In case of e-tender, all required documents should be uploaded before due date and time. Availability of power, internet connections, etc. will be the sole responsibility of the vendor. Wherever assistance is

needed for submission of e-tenders, help line numbers and executives of service provider of BHEL may be contacted.

Service provider: M-junction

Website address: <https://bheleps.buyjunction.in/>

Helpline no.: 033-66106426/6217/6013/6046/6176 (9:30 am to 5:30 pm)

9163348283/9163348284/9163348285/9163348286/8584008116 (5:30 pm to 8:30 pm)

Purchase Executive / BHEL will not be responsible for any of the activities relating to submission of offer.

D. PROCESSING OFFERS RECEIVED:

1. Any discount / revised offer submitted by the supplier on its own shall be accepted provided it is received on or before the due date and time of offer submission (i.e. Part-I bid). The discount shall be applied on pro-rata basis to all items unless specified otherwise by the bidder.
2. Changes in offers or Revised offers given after Part-I bid opening shall not be considered as a part of the original offer unless such changes / revisions are requested by BHEL.
3. In case there is no change in the technical scope and / or specifications and / or commercial terms & conditions, the supplier will not be allowed to change any of their bids after Technical bids are opened (after the due date and time of tender opening).
4. In case of changes in scope and/ or technical specifications and/ or commercial terms & conditions by BHEL and it accounts for price implications from vendors, all techno-commercially acceptable bidders shall be asked by BHEL (after freezing the scope, technical specifications and commercial terms & conditions) to submit the impact of such changes on their price bid. Impact price will be applicable only for changes in technical specification / commercial conditions by BHEL. The impact price must be submitted on or before the cut-off date specified by BHEL and the original price bid and the price impact bid will be opened together at the time of price bid opening.
5. BHEL EDN reserves the right to adopt Reverse Auction or standard Price Bid Opening procedure for price evaluation, at its discretion. This will be decided after completion of technical evaluation of tender. **(Refer Annexure III for Guidelines for Reverse Auction).**
6. Un-opened bids (including price bids) will be returned to the respective bidders after release of PO and receipt of order acknowledgement from the successful bidder.
7. After receipt of Purchase Order, supplier should submit required documents like drawings, bill of materials, datasheets, catalogues, quality plan, test procedure, type test report , O & M Manuals and / or any other relevant documents as per Specification / Purchase Order, as and when required by BHEL / Customer.
8. Any deviation to the terms and conditions not mentioned in the quotation by supplier in response to this enquiry will not be considered, if put forth subsequently or after issue of Purchase Order, unless clarification is sought for by BHEL EDN and agreed upon in the Purchase Order.
9. Evaluation shall be on the basis of delivered cost (i.e. "Total Cost to BHEL").
"Total Cost to BHEL" shall include total basic cost, packing & forwarding charges, taxes and duties, freight charges, insurance, service tax for services, any other cost indicated by vendor for execution of the contract and loading factors (for non-compliance to BHEL Standard Commercial Terms & Conditions). Benefits arising out of Nil Import Duty on Mega Projects, Physical Imports or such 100% exemptions (statutory benefits), customer reimbursements of statutory duties (like Excise Duty, CST, VAT) will also be taken into account at the time of tender evaluation. (wherever applicable and as indicated in SCC document of tender)

10. For evaluation of offers in foreign currency, the exchange rate (TT selling rate of SBI) shall be taken as under:

Single part bids: Date of tender opening

Two/three part bids: Date of Part-I bid opening

Reverse Auction: Date of Part-I bid opening

In case of Performance Bank Guarantee (PBG) also, exchange rate will be considered as mentioned above for converting foreign currency to Indian currency and vice versa.

If the relevant day happens to be a bank holiday, then the exchange rate as on the previous working day of the bank (SBI) shall be taken.

11. Ranking (L-1, L-2 etc.) shall be done only for the techno-commercially acceptable offers.

E. INFORMATION ON PAYMENT TERMS:

1. All payments will be through Electronic Fund transfer (EFT). Vendor has to furnish necessary details as per BHEL standard format (**Refer Annexure IV**) for receiving all payments through NEFT. (Applicable for Indian vendors only)
2. In case of High Sea Sales transaction, customs clearance of the consignment landed on Indian Sea / Air ports will be done by BHEL based on the original HSS documents provided by vendors. All warehousing charges due to delay in submission of complete and or correct HSS documents to BHEL will be to suppliers account only. Such recovery will be made out of any of the available bills. (**Refer Annexure V**).
3. Statutory deductions, if any, will be made and the deduction certificate shall be issued. In case vendor does not provide PAN details, the TDS deduction shall be at the maximum percentage stipulated as per the provisions of Income Tax Act. (Applicable for Indian vendors only).
Foreign vendors shall submit relevant details of their bankers like Swift Code, Banker's Name & Address etc.
4. Vendors must submit bills & invoices along with required supporting documents in time. Incomplete documentation / delayed submission of invoice / documents will result in corresponding delay in payment.

F. STANDARD PAYMENT TERMS OF BHEL-EDN

Purchase Orders for indigenous procurement

(a) SUPPLY WITH E&C:

- 1) 85% of basic value (excluding E&C charges) + 100% of taxes, duties and freight charges will be paid in 45 days from the date of dispatch or 15 days from the date of submission of complete set of documentation whichever is later.
- 2) 15% of basic value (retention money), (excluding E&C charges) will be paid in 15 days from the date of submission of documents against supplementary invoice with proof of completion of E&C along with E & C charges (if any)

(b) SUPPLY WITH SUPERVISION OF E&C:

- 1) 90% basic value (excluding E&C charges) + 100% of taxes, duties and freight charges will be paid in 45 days from the date of dispatch or 15 days from the date of submission of complete set of documentation whichever is later.
- 2) 10% of basic value (retention money), (excluding E&C charges) will be paid in 15 days from the date of completion of erection and commissioning against supplementary invoice with proof of completion of E&C along with supervision charges (if any)

(c) SUPPLY ONLY:

- 1) 100% of PO value with taxes, duties and freight will be paid in 45 days from the date of dispatch or 15 days from the date of submission of complete set of documentation whichever is later.

Purchase orders for import procurement:

(d) SUPPLY WITH E&C:

- 1) 85% of the basic value (excluding E&C charges) will be paid in 45 days, against usance draft of 45 days, from the date of AWB/BOL on submission of complete set of documents.
- 2) 15% of basic value (retention money), (excluding E&C charges) will be paid in 15 days from the date of completion of E&C along with E & C charges against supplementary invoice with proof of completion of E&C (if any).

(e) SUPPLY WITH SUPERVISION OF E&C:

- 1) 90% of the value of the order will be paid on the 45th day, against usance draft of 45 days, from the date of AWB/BOL on submission of complete set of documents.
- 2) 10% of basic value (retention money) will be paid in 15 days from the date of completion of erection and commissioning against supplementary invoice with proof of completion of E&C along with supervision charges (if any).

(f) SUPPLY ONLY:

- 1) 100% of PO value will be paid against usance draft of 45 days from the date of dispatch or 15 days from the date of submission of complete set of documents whichever is later.

LOADING FACTORS FOR PAYMENT TERMS:

- 1) For offers received with requests for negotiation of documents through bank loading will be 15% of basic value (all bank charges to be borne by the seller).
(This loading factor is applicable only for purchase orders for indigenous supply).
- 2) In all cases where credit period is 30 days but not in line with the above mentioned standard payment terms offered loading applicable will be 5% of basic value.
(This loading factor is applicable only for purchase orders for indigenous supply).
- 3) For offers received with Letter of Credit payment term in place of sight draft payment term, loading applicable will be 5% of basic value. Additional loading of 5% will be applicable for payment terms as Letter of Credit with usance of less than 45 days.
(This loading factor is applicable only for purchase orders for imported supply).
- 4) For offers received with Sight Draft payment terms with usance of less than 45 days, loading of 5% will be applicable.
(This loading factor is applicable only for purchase orders for imported supply).
- 5) All payment terms with credit period of less than 30 days for indigenous supply and any other variation of payment terms are liable for rejection.
- 6) Standard payment terms indicated in para F (a), (b), (c), (d), (e) and (f) will not attract any loading.

Note 1: Basic value of Purchase Order mentioned above will include all components of the purchase order and will exclude only taxes, duties, freight and E&C charges (wherever applicable).

Wherever the Purchase Order is split into import portion and indigenous portion of supply the retention money will be 15% or 10% (as applicable) of both purchase order values put together.

Note 2: *If the E&C could not be completed till the end of the Warranty period due to reasons not attributable to the supplier, BHEL may consider releasing the retention money to the supplier against Bank Guarantee for equivalent value valid for an initial period of one year.*

G. Bank guarantee (BG) / Performance bank guarantee (PBG):

1. Bank guarantee (BG) / Performance bank guarantee (PBG) will be applicable as called in the tender documents. Such PBG shall be valid for a period of 36 months + claim period of 6 months for a value equal to 10 % of the basic value of the purchase order. No deviation for the duration of PBG / BG will be permitted.
 - a. PBG shall be from any of the BHEL consortium of bankers (**refer Annexure VI**).
 - b. PBGs from nationalized banks are also acceptable.
 - c. PBG should be sent directly by the bank to the dealing executive mentioned in the purchase order located at the address mentioned in the purchase order. PBG should be in the format indicated. (**Refer annexures VII & VIII respectively**). No deviation to these formats will be allowed.
 - d. Confirmation from any of the BHEL consortium of banks or any of the Indian Public Sector Banks is essential for the acceptance of PBGs issued by foreign banks (located outside India).
 - e. Expired BGs / PBGs will be returned only after expiry of the claim period or on completion of the contractual obligation.
 - f. **Non acceptance for submission of PBG will attract loading as indicated below**
 - i. Loading will be equal to the percentage of value for which BG / PBG is not provided. (Ex: if PBG / BG is given for 3 % of the basic value against 10% specified, loading applicable will be 7% ($10 - 3 = 7$ %). This value will be added to the quoted price while evaluating the lowest offer.

H. PROVISIONS APPLICABLE FOR MSE VENDORS (MICRO AND SMALL ENTERPRISES)

Vendors who qualify as MSE vendors are requested to submit applicable certificates (as specified by the Ministry of Micro, Small and Medium Enterprises) at the time of vendor registration. Vendors have to submit any of the following documents along with the tender documents in the Part I / Technical bid cover to avail the applicable benefits.

- a. Valid NSIC certificate or
- b. Entrepreneur's Memorandum part II (EM II) certificate (deemed valid for 2 years).
- c. EM II certificate with CA certificate (**in the prescribed format given in Annexure IX**) applicable for the year certifying that the investment in plant and machinery of the vendor is within permissible limits as per the MSME Act 2006 for relevant status where the deemed validity is over.
- d. Documents submitted for establishing the credentials of MSE vendors must be valid as on the date of part I / technical bid opening for the vendors to be eligible for the benefits applicable for MSE vendors. Documents submitted after the Part I / Technical bid opening date will not be considered for this tender.

PURCHASE PREFERENCE FOR MSE VENDORS:

- e. MSE vendors quoting within a price band of L1 + 15% shall be allowed to supply up to 20% of the requirement against this tender provided
 1. The MSE vendor matches the L1 price
 2. L1 price is from a non MSE vendor
 3. L1 price will be offered to the nearest vendor nearest to L1 in terms of price ranking (L2 - nearest to L1). In case of non-acceptance by the MSE vendor (L2) next ranking MSE vendor will be offered who is within the L1 + 15% band (if L3 is also within 15% band).
 4. 20% of the 20% (i.e. 4% of the total enquired quantity) will be earmarked for SC/ST owned MSE firms provided conditions as mentioned in (1) and (2) are fulfilled.

5. In case no vendor under SC / ST category firms are meeting the conditions mentioned in (1) and (2) or have not participated in the tender, in such cases the 4% quantity will be distributed among the other eligible MSE vendors who have participated in the tender.
6. Serial no. 1 to 5 will not be applicable wherever it is not possible to split the tendered quantity / items on account of customer contract requirement, or the items tendered are systems. Such information that tendered quantity will not be split will be indicated in the SCC.

I. INTEGRITY COMMITMENT IN THE TENDER PROCESS, AND EXECUTION OF CONTRACTS:

1. Commitment by BHEL:

BHEL commits to take all measures necessary to prevent corruption in connection with the Tender process and execution of the Contract. BHEL will, during the tender process, treat all bidder / suppliers in a transparent and fair manner, and with equity.

2. Commitment by Bidder(s)/ Contractor(s):

- a. The Bidder(s)/ Contractor(s) commit(s) to take all measures to prevent corruption and will not directly or indirectly try to influence any decision or benefit which he is not legally entitled to.
- b. The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding or any actions to restrict competition.
- c. The Bidder(s)/ Contractor(s) will not commit any offence under the relevant Acts. The Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain or pass on to others, any information or document provided by BHEL as part of business relationship.
- d. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to the relevant guidelines issued from time to time by Government of India/ BHEL.

If the Bidder(s) / Contractor(s), before award or during execution of the Contract commit(s) a transgression of the above or in any other manner such as to put his reliability or credibility in question, BHEL is entitled to disqualify the Bidder(s) / Contractor (s) from the tender process or terminate the contract and/ or take suitable action as deemed fit.

PURCHASE EXECUTIVE



ಭಾರತ್ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್
भारत हेवी इलेक्ट्रिकल्स लिमिटेड

Bharat Heavy Electricals Ltd.,
(A Government of India undertaking)
Electronics Division

PB 2606 , Mysore Road Bangalore , 560026 INDIA

CE: PR: 002- Rev 00

GENERAL COMMERCIAL CONDITIONS FOR CONTRACT

These 'General Commercial Conditions for Contract for Purchase' hereinafter referred to as GCC apply to all enquiries, tenders, requests for quotations, orders, contracts and agreements concerning the supply of goods and the rendering of related services (hereinafter referred to as "deliveries") to Bharat Heavy Electricals Limited and any of its units, regions or divisions (hereinafter referred to as "BHEL" or the Purchaser) or its projects / customers.

Any deviations from or additions to these GCC require BHEL's express written consent. The general terms of business or sale of the vendor shall not apply to BHEL. Acceptance, receipt of shipments or services or effecting payment shall not mean that the general terms of business or sale of the vendor have been accepted.

Orders, agreements and amendments thereto shall be binding if made or confirmed by BHEL in writing. Only the Purchasing department of BHEL is authorized to issue the Purchase Order or any amendment thereof.

Definitions: Throughout these conditions and in the specifications, the following terms shall have the meanings assigned to them, unless the subject matter or the context requires otherwise.

- a) 'The Purchaser' means Bharat Heavy Electricals Limited, Electronics division, Mysore road, Bangalore 560 026, a Unit of Bharat Heavy Electricals Limited (A Govt. of India Undertaking) incorporated under the Companies Act having its registered office at BHEL House, Siri Fort, New Delhi-110049, India and shall be deemed to include its successors and assigns. It may also be referred to as BHEL.
- b) 'The vendor' means the person, firm, company or organization on whom the Purchase Order is placed and shall be deemed to include the vendor's successors, representative heirs, executors and administrator as the case may be. It may also be referred to as Seller, Contractor or Supplier.
- c) 'Contract' shall mean and include the Purchase Order incorporating various agreements, viz. tender/ RFQ, offer, letter of intent / acceptance / award, the General Conditions of Contract and Special Conditions of Contract for Purchase, Specifications, Inspection / Quality Plan, Schedule of Prices and Quantities, Drawings, if any enclosed or to be provided by BHEL or his authorized nominee and the samples or patterns if any to be provided under the provisions of the contract.
- d) 'Parties to the Contract' shall mean the 'The Vendor' and the Purchaser as named in the main body of the Purchase Order.

Interpretation:

In the contract, except where the context requires otherwise:

- a) words indicating one gender include all genders;
- b) words indicating the singular also include the plural and words indicating the plural also include the singular;
- c) provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing, and
- d) "Written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record.

Applicable Conditions:

1. **Price Basis:** All prices shall be firm until the purchase order is executed / completed in all respects. No price variations / escalation shall be permitted unless otherwise such variations / escalations are provided for and agreed by BHEL in writing in the purchase order.
2. **Validity:** The offer will be valid for a period of 120 days from the date of technical bid opening date. Validity beyond 120 days, if required, will be specified in the SCC (special conditions of contract).
3. **Ordering and confirmation of Order:** Vendor shall send the order acceptance on their company letter head within two weeks from the date of Purchase Order or such other period as specified / agreed by BHEL. BHEL reserves the right to revoke the order placed if the order confirmation differs from the original order placed. The acceptance of goods/services/supplies by BHEL as well as payments made in this regard shall not imply acceptance of any deviations.
The purchase order will be deemed to have been accepted if no communication to the contrary is received within two weeks (or the time limit as specified / agreed by BHEL) from the date of the purchase order.
4. **Documentation:** After receipt of Purchase Order, vendor should submit required documents like drawings, bill of materials, datasheets, catalogues, quality plan, test procedure, type test report , O & M Manuals and/or any other relevant documents as per Specification/Purchase Order, as and when required by BHEL/Customer.
At any stage within the contract period, the vendor shall notify of any error, fault or other defect found in BHEL's documents /specifications or any other items for reference. If and to the extent that (taking account of cost and time) any vendor exercising due care would have discovered the error, fault or other defect when examining the documents/specifications before submitting the tender, the time for completion shall not be extended. However if errors, omissions, ambiguities, inconsistencies, inadequacies or other defects are found in the vendor's documents, they shall be corrected at his cost, notwithstanding any consent or approval.
5. **Penalty:**
For delay in documentation: In the event of delay in submission of complete set of documents ((like drawings, bill of materials, datasheets, catalogues, quality plan etc. as called in tender specifications including soft copies wherever applicable) in required sets beyond three weeks (or as agreed/indicated in the Purchase Order) from the date of Purchase Order, penalty at 0.5% (half percent) per week or part thereof, limited to a maximum of 5% (five percent) of the basic material value of the Purchase Order will be applicable.

For delay in delivery: In the event of delay in agreed contractual delivery as per Purchase Order, penalty @ 0.5 % (half percent) per week or part thereof but limited to a max of 10% (ten percent) value of undelivered portion (basic material cost) will be applicable. Delivery will commence from the date of document approval by customer / BHEL or date of issue of manufacturing clearance, whichever is later. The date for which Inspection call is issued by vendor along with test certificates / test reports / Certificate of Conformance / calibration reports, as proof of completion of manufacturing will be treated as date of deemed delivery for penalty calculation. In the absence of furnishing such document indicated above as proof of completion of manufacturing along with inspection call, actual date of inspection will be considered as date of deemed delivery and BHEL will not be responsible for delay in actual date of inspection.

Penalty for delayed documentation/delayed delivery, if applicable, shall be deducted at the time of first payment. If penalty is applicable for duration of less than a week, penalty @ 0.5% (half percent) of the basic material value will be deducted.
6. **Contract variations (Increase or decrease in the scope of supply):** BHEL may vary the contracted scope as per requirements at site. If vendor is of the opinion that the variation has an effect on the agreed price or delivery period, BHEL shall be informed of this immediately in writing along with technical details. Where unit rates are available in the Contract, the same shall be applied to such additional work. Vendor shall not

perform additional work before BHEL has issued written instructions / amendment to the Purchase Order to that effect. The work which the vendor should have or could have anticipated in terms of delivering the service(s) and functionality (i.e.) as described in this agreement, or which is considered to be the result of an attributable error on the vendor's part, shall not be considered additional work.

7. Reverse Auction: BHEL reserves the right to follow REVERSE AUCTION PROCEDURE (ONLINE BIDDING ON NETWORK) before finalising the Purchase order on technically competent bidders, as per the guidelines given in Annexure III. In case BHEL does not resort to Reverse Auction, the price bids and price impacts (if any) already submitted and available with BHEL shall be opened as per BHEL's standard practice.
8. Inspection: Prior written notice of at least 10 days shall be given along with internal test certificates / COC and applicable test certificates. Materials will be inspected by BHEL-EDN-QS/CQS or BHEL nominated Third Party Inspection Agency (TPIA) or BHEL authorized Inspection Agency or Customer / Consultant or jointly by BHEL & Customer / consultant. All tests have to be conducted as applicable in line with approved Quality plan or QA Checklist or Purchase specification and original reports shall be furnished to BHEL-EDN, Bangalore for verification / acceptance for issue of dispatch clearance.
All costs related to inspections & re-inspections shall be borne by vendor. Whether the Contract provides for tests on the premises of the vendor or any of his Sub-contractor/s, vendor shall be responsible to provide such assistance, labour, materials, electricity, fuels, stores, apparatus, instruments as may be required and as may be reasonably demanded to carry out such tests efficiently. Cost of any type test or such other special tests shall be borne by BHEL only if specifically agreed to in the purchase order.
9. Transit Insurance: Transit insurance coverage between vendor's works and project site shall be to the account of BHEL, unless specifically agreed otherwise. However, vendor shall send intimation directly to insurance agency (as mentioned in dispatch instructions issued by BHEL) through fax/courier/e-mail, immediately on dispatch of goods for covering insurance. A copy of such intimation sent by vendor to insurance agency shall be given to BHEL along with dispatch documents. Dispatch documents will be treated as incomplete without such intimation copy. BHEL shall not be responsible for sending intimations to insurance agency on behalf of the vendor.
10. High Sea Sales (HSS): Customs clearance of the consignment landed on Indian Sea / Air ports will be done by BHEL based on the original HSS documents provided by vendors.
Any delay in submission of complete / correct HSS documents to BHEL may incur demurrage charges. All demurrage charges on account of incomplete / incorrect HSS documents submission by vendor will be to vendor's account and all such charges will be recovered from any of the available vendor bills with BHEL.
11. Packaging and dispatch: The Seller shall package the goods safely and carefully and pack them suitably in all respects considering the peculiarity of the material for normal safe transport by Sea / Air / Rail / Road to its destination suitably protected against loss, damage, corrosion in transit and the effect of tropical salt laden atmosphere. The packages shall be provided with fixtures / hooks and sling marks as may be required for easy and safe handling. If any consignment needs special handling instruction, the same shall be clearly marked with standard symbols / instructions. Hazardous material should be notified as such and their packing, transportation and other protection must conform to relevant regulations.
The packing, shipping, storage and processing of the goods must comply with the prevailing legislation and regulations concerning safety, the environment and working conditions. Any Imported/Physical Exports items packed with raw / solid wood packing material should be treated as per ISPM – 15 (fumigation) and accompanied by Phytosanitary / Fumigation certificate. If safety information sheets (MSDS – Material Safety Data Sheet) exist for an item or the packaging, vendor must provide this information without fail along with the consignment.
Each package must be marked with Consignee name, Purchase order number, Package number, Gross weight and net weight, dimensions (L x B x H) and Seller's name. Packing list of goods inside each package with PO item number and quantity must also be fixed securely outside the box to indicate the contents of each box. Total number of packages in the consignment must also be indicated.
Separate packing & identification of items should be as follows.
 1. Main Scope - All items must be tagged with part no. & item description.
 2. Commissioning spares - All items must be tagged with part no. & item description.
 3. Mandatory spares - All items must be tagged with part no. & item description.

12. Assignment of Rights & Obligations; Subcontracting: Vendor is not permitted to subcontract the delivery or any part thereof to third party or to assign the rights and obligations resulting from this agreement in whole or in part to third parties without prior written permission from BHEL. Any permission or approval given by the BHEL shall, however, not absolve the vendor of the responsibility of his obligations under the Contract.
13. Progress report: Vendor shall render such report as to the progress of work and in such form as may be called for by the concerned purchase officer from time to time. The submission and acceptance of such reports shall not prejudice the rights of BHEL in any manner.
14. Non-disclosure and Information Obligations: Vendor shall provide with all necessary information pertaining to the goods as it could be of importance to BHEL. Vendor shall not reveal confidential information that may be divulged by BHEL to Vendor's employees not involved with the tender/ contract & its execution and delivery or to third parties, unless BHEL has agreed to this in writing beforehand. Vendor shall not be entitled to use the BHEL name in advertisements and other commercial publications without prior written permission from BHEL.
15. Cancellation / Termination of contract: BHEL shall have the right to completely or partially terminate the agreement by means of written notice to that effect. Termination of the Contract, for whatever reason, shall be without prejudice to the rights of the parties accrued under the Contract up to the time of termination.
BHEL shall have the right to cancel/foreclose the Order/ Contract, wholly or in part, in case it is constrained to do so, on account of any decline, diminution, curtailment or stoppage of the business.
16. Risk Purchase Clause: In case of failure of supplier, BHEL at its discretion may make purchase of the materials / services NOT supplied / rendered in time at the RISK & COST of the supplier. Under such situation, the supplier who fails to supply the goods in time shall be wholly liable to make good to BHEL any loss due to risk purchase.
In case of items demanding services at site like erection and commissioning, vendor should send his servicemen /representatives within 7 days from the service call. In case a vendor fails to attend to the service call, BHEL at its discretion may also make arrangements to attend such service by other parties at the **RISK & COST** of the supplier. Under such situation the supplier who fails to attend the service shall be wholly liable to make good to BHEL any loss due to risk purchase / service including additional handling charges due to the change.
17. Shortages: In the event of shortage on receipt of goods and/or on opening of packages at site, all such shortages shall be made good within a reasonable time that BHEL may allow from such intimation and free of cost. In case BHEL raises an insurance claim, the cost of material limited to insurance settled amount less handling charges will have to be reimbursed by the Supplier.
Transit Damages: In the event of receipt of goods in damaged condition or having found them so upon opening of packages at site, Supplier shall make good of all such damages within a reasonable time from such intimation by BHEL. In case BHEL raises an insurance claim, the cost of material limited to insurance settled amount less handling charges will be reimbursed.
18. Remedial work: Notwithstanding any previous test or certification, BHEL may instruct the vendor to remove and replace materials/goods or remove and re-execute works/services which are not in accordance with the purchase order. Similarly BHEL may ask the vendor to supply materials or to execute any services which are urgently required for any safety reasons, whether arising out of or because of an accident, unforeseeable event or otherwise. In such an event, Vendor shall provide such services within a reasonable time as specified by BHEL.
19. Indemnity Clause: Vendor shall comply with all applicable safety regulations and take care for the safety of all persons involved. Vendor is fully responsible for the safety of its personnel or that of his subcontractor's men / property, during execution of the Purchase Order and related services. All statutory payments including PF, ESI or other related charges have to be borne by the vendor. Vendor is fully responsible for ensuring that all legal compliances are followed in course of such employment.

20. Product Information, Drawings and Documents: Drawings, technical documents or other technical information received by Vendor from BHEL or vice versa shall not, without the consent of the other party, be used for any other purpose than that for which they were provided. They may not, without the consent of the Disclosing party, otherwise be used or copied, reproduced, transmitted or communicated to third parties. All information and data contained in general product documentation, whether in electronic or any other form, are binding only to the extent that they are by reference expressly included in the contract.

Vendor, as per agreed date/s but not later than the date of delivery, provide free of charge information and drawings which are necessary to permit and enable BHEL to erect, commission, operate and maintain the product. Such information and drawings shall be supplied in as many numbers of copies as may be agreed upon.

All intellectual properties, including designs, drawings and product information etc. exchanged during the formation and execution of the Contract shall continue to be the property of the disclosing party.

21. Intellectual Property Rights, Licenses: If any Patent, design, Trade mark or any other intellectual property rights apply to the delivery (goods / related service) or accompanying documentation shall be the exclusive property of the Vendor and BHEL shall be entitled to the legal use thereof free of charge by means of a non-exclusive, worldwide, perpetual license. All intellectual property rights that arise during the execution of the Purchase Order/ contract for delivery by vendor and/or by its employees or third parties involved by the vendor for performance of the agreement shall belong to BHEL. Vendor shall perform everything necessary to obtain or establish the above mentioned rights. The Vendor guarantees that the delivery does not infringe on any of the intellectual property rights of third parties. The Vendor shall do everything necessary to obtain or establish the alternate acceptable arrangement pending resolution of any (alleged) claims by third parties. The Vendor shall indemnify BHEL against any (alleged) claims by third parties in this regard and shall reimburse BHEL for any damages suffered as a result thereof.

22. Force Majeure: Notwithstanding anything contained in the purchase order or any other document relevant thereto, neither party shall be liable for any failure or delay in performance to the extent said failures or delays are caused by the "Act of God" and occurring without its fault or negligence, provided that, force majeure will apply only if the failure to perform could not be avoided by the exercise of due care and vendor doing everything reasonably possible to resume its performance.

A party affected by an event of force majeure which may include fire, tempest, floods, earthquake, riot, war, damage by aircraft etc., shall give the other party written notice, with full details as soon as possible and in any event not later than seven (7) calendar days of the occurrence of the cause relied upon. If force majeure applies, dates by which performance obligations are scheduled to be met will be extended for a period of time equal to the time lost due to any delay so caused.

Notwithstanding above provisions, in an event of Force Majeure, BHEL reserves for itself the right to cancel the order/ contract, wholly or partly, in order to meet the overall project schedule and make alternative arrangements for completion of deliveries and other schedules.

23. Guarantee / Warranty: Wherever required, and so provided in the specifications / Purchaser Order, the Seller shall guarantee that the stores supplied shall comply with the specifications laid down, for materials, workmanship and performance. Unless otherwise specified, guarantee / warranty period shall be 30 months after the date of delivery of goods or 24 months from the date of commissioning of goods whichever is earlier. The guarantee / warranty period as described above shall apply afresh to replaced, repaired or re-executed parts of a delivery. Unless otherwise specifically provided in the Purchase Order, Vendor's liability shall be co terminus with the expiration of the applicable guarantee / warranty period.
24. Limitation of Liability: Vendor's liability towards this contract is limited to a maximum of 100% of the contract value and consequential damages are excluded. However the limits of liability will have no effect in cases of criminal negligence or wilful misconduct.
- The total liability of Vendor for all claims arising out of or relating to the performance or breach of the Contract or use of any Products or Services or any order shall not exceed the total Contract price.

25. Liability during guarantee / warranty: Vendor shall arrange replacement / repair of all the defective materials / services under its obligation under the guarantee / warranty period. The rejected goods shall be taken away by vendor and replaced / repaired. In the event of the vendor's failure to comply, BHEL may take appropriate action including disposal of rejections and replenishment by any other sources at the cost and risk of the vendor.
In case, defects attributable to vendor are detected during first time commissioning or use, vendor shall be responsible for replacement / repair of the goods as required by BHEL at vendor's cost. In all such cases expiry of guarantee / warranty will not be applicable.
26. Liability after guarantee / warranty period: At the end of the guarantee / warranty, the Vendor's liability ceases except for latent defects (latent defects are defects / performance issues notices after the guarantee / warranty has expired). The Contractor's liability for latent defects warranty for the plant and equipment including spares shall be limited to a period of six months from the end of the guarantee / warranty period of the respective plant and equipment including spares or first time commissioning whichever is later but not later than 3 (three) years from the date of shipment.
27. Compliance with Laws: Vendor shall, in performing the contract, comply with all applicable laws. The vendor shall make all remittances, give all notices, pay all taxes, duties and fees, and obtain all permits, licences and approvals, as required by the laws in relation to the execution and completion of the contract and for remedying of any defects; and the Contractor shall indemnify and hold BHEL harmless against and from the consequences of any failure to do so.
28. Settlement of Disputes: Except as otherwise specifically provided in the Purchase Order, decision of BHEL shall be binding on the vendor with respect to all questions relating to the interpretation or meaning of the terms and conditions and instructions herein before mentioned and as to the completion of supplies/work/services, other questions, claim, right, matter or things whatsoever in any way arising out of or relating to the contract, instructions, orders or these conditions or otherwise concerning the supply or the execution or failure to execute the order, whether arising during the schedule of supply/work or after the completion or abandonment thereof. Any disputes or differences among the parties shall to the extent possible be settled amicably between the parties thereto, failing which the disputed issues shall be settled through arbitration. Vendor shall continue to perform the contract, pending settlement of dispute(s).
29. Arbitration Clause: In case amicable settlement is not reached in the event of any dispute or difference arising out of the execution of the Contract or the respective rights and liabilities of the parties or in relation to interpretation of any provision in any manner touching upon the Contract, such dispute or difference shall (except as to any matters, the decision of which is specifically provided for therein) be referred by either party to the sole arbitration of an Arbitrator appointed by the Executive Director/ General Manager of the purchasing unit/ region/ division of BHEL. Vendor shall have no objection even if the Arbitrator so appointed is an employee of BHEL or has ever dealt/ had to deal with any matter relating to this Contract.
Subject as aforesaid the provisions of the Arbitration and Conciliation Act, 1996 of India or any statutory modification or re-enactment thereof and the rules made there under and for the time being in force shall apply to the arbitration proceedings under this clause. It is a term of contract that the party initiating arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute. The venue for the arbitration shall be Bangalore, India. The award of the arbitrator shall be a speaking award and shall be final, conclusive and binding on all parties to this contract.
The cost of arbitration shall be borne equally by the parties. Notwithstanding the existence of any dispute or difference or any reference for the arbitration, the vendor shall proceed with and continue without hindrance the performance of the work under the contract with due diligence and expedition in a professional manner.
30. Applicable Laws and Jurisdiction of Courts: Prevailing Indian laws both substantive and procedural, including modifications thereto, shall govern the Contract. Subject to the conditions as aforesaid, the competent courts in BANGALORE alone shall have jurisdiction to consider over any matters touching upon this contract.

31. General Terms: That any non-exercise, forbearance or omission of any of the powers conferred on BHEL and /or any of its authorities will not in any manner constitute waiver of the conditions hereto contained in these presents.

That the headings used in this agreement are for convenience of reference only.

That all notices etc., to be given under the Purchase order shall be in writing, type script or printed and if sent by registered post or by courier service to the address given in this document shall be deemed to have been served on the date when in the ordinary course, they would have been delivered to the addressee.

ANNEXURE - I
LIST OF INTERNATIONAL GATEWAY AIRPORTS

For airbased consignment, terms of delivery will be on FCA basis from following listed airports only.
This list is valid from 01.03.2013 to 28.02.2015. Vendors are requested to verify this list for use after 28.02.2015.

SCHEDULE NO	COUNTRY	CURRENCY CODE	AIRPORT
D01	UK	GBP	LONDON (HEATHROW)
D02	UK	GBP	NEW CASTLE
D03	UK	GBP	OXFORD. CHETLAM
D04	UK	GBP	BRISTOL. WELLINGBOROUGH
D05	UK	GBP	BIRMINGHAM
D06	UK	GBP	EAST MIDLANDS
D07	UK	GBP	MANCHESTER
D08	UK	GBP	LEEDS
D09	UK	GBP	GLASGOW
D10	FRANCE	EURO	PARIS (ROISSY) & LYON
D11	SWEDEN	EURO	STOCKHOLM
D12	SWEDEN	EURO	GOTHENBERG & MALMO
D13	ITALY	EURO	ROMA, MILAN
D14	ITALY	EURO	TURIN, BOLOGNA, FLORENCE
D15	NETHERLANDS	EURO	AMSTERDAM, ROTTERDAM
D16	AUSTRIA	EURO	VIENNA, LINZ, GRAZ
D17	BELGIUM	EURO	ANTWERP, BRUSSELS
D18	DENMARK	DKK	COPENHAGEN
D19	JAPAN	JPY	TOKYO, OSAKA
D20	SINGAPORE	SGD	SINGAPORE
D21	CANADA	CAD	TORONTO
D22	CANADA	CAD	MONTREAL
D23	USA	USD	NEW YORK, BOSTON
D24	USA	USD	CHICAGO
D25	USA	USD	SAN FRANCISCO, LOS ANGELES
D26	USA	USD	ALANTA, HOUSTON
D27	GERMANY	EURO	MUNICH, KOLN, DUSSELDORF, HANNOVER, HAMBURG, STUTTGART, DAMSTADT, MANIHIEM, NURUMBERG
D28	GERMANY	EURO	FRANKFURT
D29	GERMANY	EURO	BERLIN
D30	SWITZERLAND	SFR	BASLE, ZURICH, GENEVA
D31	SPAIN	EURO	BARCELONA
D32	AUSTRALIA	AUD	SYDNEY
D33	AUSTRALIA	AUD	MELBOURNE
D34	AUSTRALIA	AUD	PERTH
D35	CZECH	EURO	PRAGUE
D36	HONG KONG	HKD	HONG KONG
D37	NEW ZELAND	NZD	AUCKLAND
D38	RUSSIA	USD	MOSCOW
D39	SOUTH KOREA	USD	KIMPO INTERNATIONAL, INCHEON
D40	FINLAND	EURO	HELSINKI
D41	ROMANIA	EURO	BUCHAREST
D42	NORWAY	EURO	OSLO
D43	IRELAND	EURO	DUBLIN
D44	ISRAEL	USD	TEL AVIV
D45	UAE	USD	DUBAI
D46	OMAN	USD	MUSCAT
D47	EGYPT	USD	CAIRO
D48	TAIWAN	USD	TAIPEI
D49	UKRAINE	USD	KIEV
D50	CHINA	USD	SHANGHAI, SHENZHEN
D51	PHILIPINES	USD	MANILA
D52	MALAYSIA	USD	KUALALUMPUR, PE NANG
D53	CYPRUS	USD	LARNACA
D54	SOUTH AFRICA	USD	JOHANNESBERG, DURBAN
D55	SLOVAKIA	EURO	BARTISLOVA
D56	SAUDI ARABIA	SAR	RIYADH
D57	TURKEY	EURO	ISTANBUL
D58	THAILAND	USD	BANGKOK
D59	BRAZIL	USD	SAO PAULO, RIO DE JANEIRO

ANNEXURE – II
DISCREPANCY IN WORDS & FIGURES – QUOTED IN PRICE BID

Following guidelines will be followed in case of discrepancy in words & figures-quoted in price bid:

(a) If, in the price structure quoted for the required goods/services/works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of the purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly.

(b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and

(c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

(d) If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date upto which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of the purchaser, the bid is liable to be ignored.

ANNEXURE-III
GUIDELINES FOR REVERSE AUCTION PROCEDURE

Against this enquiry for the subject item/ system with detailed scope of supply as per enquiry specifications, BHEL may resort to “REVERSE AUCTION PROCEDURE” i.e., ON LINE BIDDING (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
2. Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit “online sealed bid” in the Reverse Auction. Non-submission of “online sealed bid” by the bidder for any of the eligible items for which techno-commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
3. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
4. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.
5. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
6. Bidders have to fax the Compliance form before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
7. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at “Total Cost to BHEL” like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.
8. Reverse auction will be conducted on scheduled date & time.
9. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.
10. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, as provided on case-to-case basis to Service provider within two working days of Auction without fail.
11. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL’s standard practice.
12. Bidders shall be required to read the “Terms and Conditions” section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the “Business Rules of Reverse Auction”, which will be communicated before the Reverse Auction.
13. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant BHEL guidelines, shall be initiated by BHEL and the results of the RA scrapped/ aborted.
14. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.
15. In case BHEL decides to go for reverse auction, the H1 bidder (whose quote is highest in online sealed bid) may not be allowed to participate in further RA process.

ANNEXURE - IV
Electronic Funds Transfer (EFT) OR
Paylink Direct Credit Form

Please Fill up the form in **CAPITAL LETTERS** only.

TYPE OF REQUEST(Tick one): _____ CREATE _____ CHANGE

BHEL Vendor / Supplier Code:	
Company Name :	
Permanent Account Number(PAN):	
Address	

City:	PINCODE		STATE	
-------	---------	--	-------	--

Contact Person(s)	
Telephone No:	
Fax No:	
e-mail id:	

1 Bank Name:	
2 Bank Address:	
3 Bank Telephone No:	
4 Bank Account No:	
5 Account Type: Savings/Cash Credit	
6 9 Digit Code Number of Bank and branch appearing on MICR cheque issued by Bank	
7 Bank IFSC Code(applicable for NEFT)	
8 Bank IFSC code(applicable for RTGS)	

(Indian Financial System Code)

- A I hereby certify that the particulars given above are true, correct and complete and that I, as a representative for the above named Company, hereby authorise BHEL, EDN, Bangalore to electronically deposit payments to the designated bank account.
- B If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold BHEL / transferring Bank responsible.
- C This authority remains in full force until BHEL, EDN, Bangalore receives written notification requesting a change or cancellation.
- D I have read the contents of the covering letter and agree to discharge the responsibility expected of me as a participant under ECS / EFT.

Date:

Authorised Signatory:

Designation:

Telephone No. with STD Code

Company Seal

Bank Certificate

We certify that _____ has an Account No _____ with us and we confirm that the bank details given above are correct as per our records.

Date: _____ (.....)
Place: _____ Signature

Please return completed form **along with a blank cancelled cheque or photocopy** thereof to:

Bharath Heavy Electricals Ltd,

Attn:

Electronics Division, Mysore Road,

BANGALORE - 560 026

In case of any Query, please call concerned purchase executive.

ANNEXURE - V
PRESENT PROCEDURE FOR SALE IN TRANSIT (HIGH SEA SALES)

In case of High Sea Sales, vendor should submit following documents:

1. ORIGINAL HIGH SEA SALES AGREEMENT

- Sale agreement (on Rs. 200/- non-judicial stamp paper & notarised with 2 witnesses with identity) has to be signed between BHEL and the Party importing material. The date of the sale documents should be in between the date of House Air Way Bill / Bill of Lading and before landing of the goods in Indian origin.
- The date of the stamp paper should be prior to the Air Way Bill / Bill of Lading date.
- Following shall be included in the High Sea Sales Agreement:
“THE BUYER ALSO UNDERTAKE DISCHARGES, THE OBLIGATION AND FULFILLMENT OF CONDITIONS, IF ANY, ATTACHED TO THE IMPORTATION, ASSESSMENT AND CLEARANCE OF THE GOODS IN TERMS CUSTOMS TARIFF ACT 1975, THE CUSTOMS ACT 1962 & RULES & REGULATIONS MADE THERE UNDER AND OTHER RELEVANT ACTS, ORDERS, NOTIFICATIONS”.

2. ORIGINAL INVOICES: INDIGENOUS RUPEE INVOICE & FOREIGN CURRENCY INVOICE

- Prices should be C.I.F., designated airport/seaport basis.
- I.E.C., C.S.T., K.S.T. Nos. to be mentioned.
- Description of item (Nomenclature), Unit & Quantity in both the Foreign Currency & the Indigenous Invoice in Rupee shall be exactly as per Purchase Order Description of item, Quantity and Unit. The Indigenous Invoice value shall be exactly as per Purchase Order value.
- Seller should give Foreign Currency Invoice from the original consignor. The Foreign Currency Invoice value should be at least 2% (two per cent) less than the Indigenous Rupee Invoice value in equivalent foreign currency.

4. ORIGINAL HOUSE AIR WAY BILL/ BILL OF LADING

- The sale agents should duly endorse House Air Way Bill (HAWB) for air shipments or original Bill of Lading (O.B.L.) for sea shipments and Foreign Currency Invoice in favour of BHEL-EDN.

5. ORIGINAL CARGO ARRIVAL NOTICE FROM FORWARDER.

6. ORIGINAL DELIVERY ORDER ISSUED IN NAME OF BHEL-EDN.

7. ORIGINAL PACKING LIST.

8. A LETTER TO THE COMMISSIONER OF CUSTOMS FOR EFFECTING ABOVE SALE.

9. A LETTER TO THE DEPUTY ASSESSOR (OCTROI) FOR EFFECTING ABOVE SALE IN FAVOUR OF BHEL.

REMARKS: In case vendor needs any clarifications on the above, the same may be sought in writing.

Annexure-VI
BHEL MEMBER BANKS (LIST OF CONSORTIUM BANKS)

BANK GUARANTEE (BG) SHALL BE ISSUED FROM THE FOLLOWING BANKS ONLY:

	Nationalised Banks		Nationalised Banks
1	Allahabad Bank	19	Vijaya Bank
2	Andhra Bank		Public Sector Banks
3	Bank of Baroda	20	IDBI
4	Canara Bank		Foreign Banks
5	Corporation Bank	21	CITI Bank N.A
6	Central Bank	22	Deutsche Bank AG
7	Indian Bank	23	The Hongkong and Shanghai Banking Corporation Ltd. (HSBC)
8	Indian Overseas Bank	24	Standard Chartered Bank
9	Oriental Bank of Commerce	25	The Royal Bank of Scotland N.V.
10	Punjab National Bank	26	J P Morgan
11	Punjab & Sindh Bank		Private Banks
12	State Bank of India	27	Axis Bank
13	State Bank of Hyderabad	28	The Federal Bank Limited
14	Syndicate Bank	29	HDFC Bank
15	State Bank of Travancore	30	Kotak Mahindra Bank Ltd
16	UCO Bank	31	ICICI Bank
17	Union Bank of India	32	IndusInd Bank
18	United Bank of India	33	Yes Bank

Note:

- All BGs must be issued from BHEL consortium banks listed above.
- BHEL may accept BG from other Nationalised Banks also which are not listed above.
- BG will not be accepted from Scheduled Banks and Co-operative Banks.
- In case BG is issued from a bank located outside Indian territory and is issued in foreign currency, the BG must be routed through and confirmed by any one of the above mentioned consortium banks or any of the Indian Public Sector Banks.
- This list is subject to changes. Hence vendors are requested to check this list every time before issuing BGs.

ANNEXURE-VII
PROFORMA OF PERFORMANCE BANK GUARANTEE
(For Bank Guarantees issued in Indian Rupees by Banks in India)

Note:

- To be executed in Rs. 100/- Non-Judicial stamp paper.
- To be submitted by issuing bank to Purchase Dept. directly. Please give BHEL address to banker.
- Do not enclose with Bank document.
- Modifications and additions/deletions to this BG format are not permitted.

PERFORMANCE GUARANTEE (PROFORMA OF BANK GUARANTEE)

Ref no: (BG No.) _____

THIS DEED OF GUARANTEE made and executed on the _____ day of _____ (month & year), by the _____ (Bank), registered under the Companies Act 1956/Nationalised Bank constituted under the Banking Companies (acquisition and transfer of undertakings) Act constituted under the **State Bank of India Act / Subsidiary Banks Act**, having its registered / head office at _____ represented herein by its Branch Manager / authorised representatives Sri. _____ & Sri. _____ (Hereinafter called 'guarantor' which term shall mean and include its successors and assigns)

IN FAVOUR OF BHARAT HEAVY ELECTRICALS LIMITED

_____ (Buyer's Name), a company registered under the companies Act, 1956 having its registered office at BHEL House at Siri Fort, New Delhi-110 049 and its Electronics Division at Mysore Road, Bangalore - 26 (hereinafter referred to as the 'Company' Which term shall include its successors and assigns):

Whereas the company has placed an order on _____ (State the name of the company / firm and its address) (hereinafter referred to as the 'Supplier' which term shall mean and include its liquidators, successors and assign) for the supply of system under order / Contract No _____ Dtd _____.

AND WHEREAS the supplier has agreed to supply the materials and carryout the works as detailed and in accordance with the terms set out in the said order / contract.

AND WHEREAS the company is not required to pay to the supplier a sum of Rupees _____ being the 10% of the value of the goods supplied / Works performed / Services rendered under the said order / contract between the supplier and the company, till the company is satisfied with the mechanical Warranties and the performance standards stipulated in the said order / contract between the company and the supplier has been duly fulfilled, except, against a Bank Guarantee for the said sum of Rs. _____ in favour of the company by reputed Bank, in which case the company has agreed to make payment to the supplier of the said sum of Rupees _____ being (10%) of the value of the goods supplied / Works performed / Services rendered under the agreement between the supplier and the company and the Guarantor has at the request of the supplier, agreed to furnish this Guarantee subject to the terms and conditions stated below :

NOW THIS DEED WITNESSES THAT IN pursuance of the above said agreement, the guarantor hereby agrees and covenants with company is as follows:

- 1) That during the period this contract of Guarantee remains effectual, the guarantor shall be liable in respect of the amount due and owing to the company in respect of the payments to the extent of Rs _____ (in words) _____ against any loss or damage caused to or suffered by the company by reasons of any breach of the terms of the said order / contract / Agreement by the supplier
- 2) The Guarantor hereby undertakes to pay the amounts and payable under this guarantee without any demur, merely on demand from the company intimating that the amount claimed is due by way of loss or damage caused to or suffered or would be caused or suffered by any terms contained in the said order/contract. Any such demand made on the guarantor shall be conclusive as regards the amount due and payable by the Guarantor irrespective of the fact whether the contractor/supplier admits or denies.
- 3) The Guarantor further agrees that the agreement herein contained shall remain in force and effect till all supplies to be made /works to be performed / services to be rendered under the said order /contract /agreement are completed to the entire satisfaction of the company or till company certifies that the terms and conditions of the said order / contract agreement have been fully and

properly carried out by the said supplier and accordingly discharges the Guarantee. Unless a demand or claim under this guarantee is made on the guarantor in writing on or before the expiry of claim period indicated in clause 6 below, the guarantor shall be discharged from all the liability under this guarantee thereafter.

- 4) The guarantor further agrees with the company that the company shall have the fullest liberty without the consent of the guarantor and without effecting in any manner the obligations of the guarantor hereunder to vary any of the terms of the said order / contract / agreement or extend the time of performance by the said supplier from time to time or refrain from exercising the power exercisable by the company against the said supplier or to forebear or omit to enforce any of the terms and conditions relating to the said order / contract / agreement, and the guarantor shall not be relieved of its liability in whole or in part, by reason of any act, commission or forbearance on the part of the company or by reason of any such variation, or extension being granted to the said supplier or by reason of any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving the guarantor.
- 5) The guarantor undertakes not to revoke this guarantee during its currency except with the previous consent of the company in writing.
- 6) Notwithstanding anything herein above obtained, the liability of the guarantor under these presents is restricted to Rs._____. The guarantee shall be in force till its expiry on _____ unless a demand is made on the guarantor within SIX months from the date of expiry, all the liability of the guarantor under this guarantee shall stand fully discharged. The decision of the claimant in regard to breach of contract is final and binding on the Bank.

IN WITNESS whereof, the guarantor, acting through its authorised representative has executed this deed of Guarantee on the day, month and year first above written.

(Seal of the Bank to be affixed)
For & On behalf of _____ Bank
Signature of authorized person with
seal & designation

WITNESS:

- 1.
- 2.

ANNEXURE-VIII
PROFORMA OF PERFORMANCE BANK GUARANTEE
(For Bank Guarantees issued in Foreign Currency by Banks located outside India)

BANK NAME AND ADDRESS

Electronics Division
Bharat Heavy Electrical Limited (B.H.E.L.),
Mysore Road, P.B. No. 2606,
Bangalore- 560 026

Dear Sir,

Sub : CONTRACT PERFORMANCE GUARANTEE **Ref no.** **Dtd.....**

WHEREAS you have entered into a contract reference No & PO NO. _____
Date _____ with M/s _____ having its registered office at
_____ for the supply of _____ as detailed in your purchase
order No. _____ which is hereinafter referred to as "the said contract" and WHEREAS M/s
_____ has undertaken to produce a Bank Guarantee for 10% (Ten Percent)
of the contract price amounting to _____
(_____) to secure its obligations to Electronics Division, BHEL
having its registered office at New Delhi for the performance of the contract including the warranty of the
equipment supplied, We _____ Bank,
_____ hereby expressly, irrevocably and unreservedly undertake and
guarantee as principal obligors on behalf of M/s _____ that in the event Bharat
Heavy Electricals Ltd. (B.H.E.L.) declares to us in writing that M/s _____
has not fulfilled any obligors according to the contractual obligation of the said contract, to pay you on
demand and without demur to Bharat Heavy Electricals Ltd., Electronics Division, Mysore Road, P.B.No.
2606, Bangalore - 560 026., India an amount of _____
(in words _____) subject to
as may be determined below :

1. Notwithstanding any right M/s. _____ may have directly against or any
disputes raised by M/s. _____,
_____, Your written demand shall be conclusive
evidence to us that repayment is due under the terms of the said contract and shall be binding on
us.

2. We shall not be discharged or released from this undertaking and Guarantee by any arrangements, variations made between you and M/s. _____ with or without our consent and knowledge or by any alteration in the obligations of M/s. _____ by any forbearance whether as to payment, time, performance or otherwise.
3. This guarantee shall remain valid until the end of six months after the close of the warranty period or until the same is reported by BHEL to us whichever is earlier.
4. We agree and undertake not to revoke this guarantee during its validity unless discharged in writing by you subject to the provision of clause (7) below :
5. This guarantee shall be a continuing guarantee subject to the foregoing and shall not be discharged by any change in the constitution of the Bank or M/s. _____ .
6. This guarantee shall be governed by and constructed in accordance with the Laws of India.
7. At any time _____ Bank may render this guarantee null and void by paying to Bharat Heavy Electricals Ltd. the full amount being _____ (in words _____)
_____)

**For and On behalf of Bank
By its Authorised Signatory**

Annexure - IX
Certificate by Chartered Accountant on Letter Head

This is to certify that M/s
.....(Hereinafter referred to as 'Company')
having its registered office at is registered under MSMED Act 2006,
(Entrepreneur Memorandum No (Part-II dtd
Category: (Micro/Small). (Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as
on date..... **as per MSMED Act 2006 is as follows:**

- 1. For Manufacturing Enterprises:** Investment in plant and machinery (i.e., original cost excluding land and building and the items specified by the Ministry of Small Industries vide its notification No.S.O.1722 (E) dated October 5, 2006:
- 2. For Service Enterprises:** Investment in equipment (original cost excluding land and building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED Act, 2006:
Rs.Lacs.

The above investment of Rs. Lacs in within permissible limit of
Rs..... Lacs for.....Micro / Small (Strike off which is not
applicable) Category under MSMED Act 2006.

Date:

(Signature)

Name -

Membership Number -

Seal of Chartered Accountant

Guidelines for Indian Agents
ANNEXURE - X

- Definition of Indian Agent: An Indian Agent of foreign principal is an individual, a partnership, an association of persons, a private or public company, that carries out specific obligation(s) towards processing of BHEL tender or finalization or execution of BHEL's contract on behalf of the foreign supplier.

In case of yes, vendor to note the following and reply accordingly:

- i. BHEL shall deal directly with foreign vendors, wherever required, for procurement of goods. However, if the foreign principal desires to avail of the services of an Indian agent, then the foreign principal should ensure compliance to regulatory guidelines - which require mandatory submission of an Agency Agreement.
- ii. It shall be incumbent on the Indian agent and the foreign principal to adhere to the relevant guidelines of Government of India, issued from time to time.
- iii. The Agency Agreement should specify the precise relationship between the foreign OEM / foreign principal and their Indian agent and their mutual interest in the business. All services to be rendered by agent/ associate, whether of general nature or in relation to the particular contract, must be clearly stated by the foreign supplier/ Indian agent. Any payment, which the agent or associate receives in India or abroad from the OEM, whether as commission or as a general retainer fee should be brought on record in the Agreement and be made explicit in order to ensure compliance to laws of the country.
- iv. Any agency commission to be paid by BHEL to the Indian agent shall be in Indian currency only.
- v. Tax deduction at source is applicable to the agency commission paid to the Indian agent as per the prevailing rules.
- vi. In the absence of any agency agreement, BHEL shall not deal with any Indian agent (authorized representatives / associate / consultant, or by whatever name called) and shall deal directly with the foreign principal only for all correspondence and business purposes.
- vii. The "Guidelines for Indian Agents of Foreign Suppliers" enclosed at annexure -'A' shall apply in all such cases.

- viii. The supply and execution of the Purchase Order (including indigenous supplies/ service) shall be in the scope of the OEM/ foreign principal. The OEM/ foreign principal should submit their offer inclusive of all indigenous supplies/ services and evaluation will be based on 'total cost to BHEL'. In case OEM/ foreign principal recommends placement of order(s) towards indigenous portion of supplies/ services on Indian supplier(s)/ agent on their behalf, the credentials/ capacity/ capability of the Indian supplier(s)/ agent to make the supplies/ services shall be checked by BHEL as per the extant guidelines of Supplier Evaluation, Approval & Review Procedure (SEARP), before opening of price bids. In this regard, details may be checked as per Annexure-B (copy enclosed). It will be the responsibility of the OEM/ foreign principal to get acquainted with the evaluation requirements of Indian supplier/ agent as per SEARP available on www.bhel.com.

The responsibility for successful execution of the contract (including indigenous supplies/ services) lies with the OEM/ foreign principal. All bank guarantees to this effect shall be in the scope of the OEM/ foreign principal.

---X---

Vendor's Signature with Seal

Guidelines for Indian Agents of Foreign Suppliers

- 1.0 There shall be compulsory registration of agents for all Global (Open) Tender and Limited Tender. An agent who is not registered with BHEL shall apply for registration in the registration form in line with SEARP.
- 1.1 Registered agents will file an authenticated Photostat copy duly attested by a Notary Public/Original certificate of the Principal confirming the agency agreement and giving the status being enjoyed by the agent and the commission/ remuneration/ salary/ retainership being paid by the principal to the agent before the placement of order by BHEL.
- 1.2 Wherever the Indian representatives have communicated on behalf of their principals and the foreign parties have stated that they are not paying any commission to the Indian agents, and the Indian representative is working on the basis of salary or as retainer, a written declaration to this effect should be submitted by the party (i.e. Principal) before finalizing the order.
- 2.0 **Disclosure of particulars of agents/ representatives in India, if any.**
- 2.1 Tenderers of Foreign nationality shall furnish the following details in their offers:
 - 2.1.1 The Bidder(s)/ Contractor(s) of foreign origin shall disclose the name and address of the agents/ representatives in India if any and the extent of authorization and authority given to commit the Principals. In case the agent/ representative be a foreign Company, it shall be confirmed whether it is existing Company and details of the same shall be furnished.
 - 2.1.2 The amount of commission/ remuneration included in the quoted price(s) for such agents/ representatives in India.
 - 2.1.3 Confirmation of the Tenderer that the commission/ remuneration, if any, payable to his agents/ representatives in India, may be paid by BHEL in Indian Rupees only.
- 2.2 Tenderers of Indian Nationality shall furnish the following details in their offers:
 - 2.2.1 The Bidder(s)/ Contractor(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any, indicating their nationality as well as their status, i.e. whether manufacturer or agents of manufacturer holding the Letter of Authority of the Principal specifically authorizing the agent to make an offer in India in response to tender either directly or through the agents/ representatives.
 - 2.2.2 The amount of commission/ remuneration included in the price (s) quoted by the Tenderer for himself.
 - 2.2.3 Confirmation of the foreign principals of the Tenderer that the commission/ remuneration, if any, reserved for the Tenderer in the quoted price(s), may be paid by BHEL in India in equivalent Indian Rupees on satisfactory completion of the Project or supplies of Stores and Spares in case of operation items.
- 2.3 In either case, in the event of contract materializing, the terms of payment will provide for payment of the commission/ remuneration, if any payable to the agents/ representatives in India in Indian Rupees on expiry of 90 days after the discharge of the obligations under the contract.
- 2.4 Failure to furnish correct and detailed information as called for in paragraph 2.0 above will render the concerned tender liable to rejection or in the event of a contract materializing, the same liable to termination by BHEL. Besides this there would be a penalty of banning business dealings with BHEL or damage or payment of a named sum.

Disclaimer Certificate For Deemed Export Benefits

I, (Name & Designation)on behalf of M/s. (Name and address of the supplier) hereby certify that we have supplied the following goods to M/s..... (Name and address of the recipient):

S.No.	Inv. No. & date	Description of goods	Unit	Qty.	Value

1. We are the manufacturer exporters/suppliers and are registered/not registered with Central Excise and have not availed and will not avail CENVAT facility in respect of the input/components used in aforesaid supplies. We have also not availed and will not avail rebate on the inputs/components used in aforesaid supplies.

OR

We are the suppliers and our supporting manufacturer(s) is/are registered/not registered with Central Excise and have not availed and will not avail CENVAT facility in respect of the inputs/components used in aforesaid supplies.

2. We also certify that we have not been issued any Advance Authorization/Duty Free Import Authorization in respect of the aforesaid supplied goods and have not availed any benefit thereon.

3. We further state that we have not drawn nor will draw any benefit for deemed export and we have no objection if M/s..... (Name and address of the recipient) draws the deemed export benefits on the supplies mentioned above. (Required to be given in case benefits are claimed by recipient of goods).

OR

We have not given disclaimer certificate to M/s..... (Name and address of the recipient) and will not give disclaimer certificate, in future, in respect of these supplies for claiming deemed export benefits (Required to be given in case benefits are claimed by DTA suppliers).

1. Registration of Suppliers and Flow.

Unregistered Supplier: Supplier visits EPS at <https://bheleps.buyjunction.in>

- a. Supplier visits EPS at <https://bheleps.buyjunction.in>
- b. Clicks "REGISTER" for registration
- c. Fills up the Registration Page form
- d. MJ will ensure Authentication of Registration ¹
- e. Supplier logs in with the ID and password
- f. Supplier Maps the signing Certificate
- g. MJ will ensure the authentication the signing certificate ¹.
- h. Supplier Logs in to the system again and views the RFQ
- i. Supplier Attaches himself to the RFQ by clicking the Interested button
- j. Supplier fills the bid template and makes necessary attachments
- k. Supplier submits his bid by clicking CONFIRM.

NB:-

¹ – BHEL Administrator or user will have no role for approving Registration and Open Tenders and OSC for Any supplier who has registered himself from the front END which is in case of OT.

• For registered Supplier:

- Supplier visits EPS home page
- Supplier signs in with his/her user Id and password
- Selects the RFQ Code and views it.
- Attaches himself to the RFQ by clicking the Interested button
- Supplier fills the bid template and makes necessary attachments
- Supplier submits his bid by clicking CONFIRM.

2. Open Tender Process For all units with data transfer Mechanism – Template based Bid submission mechanism

• BID SUBMISSION

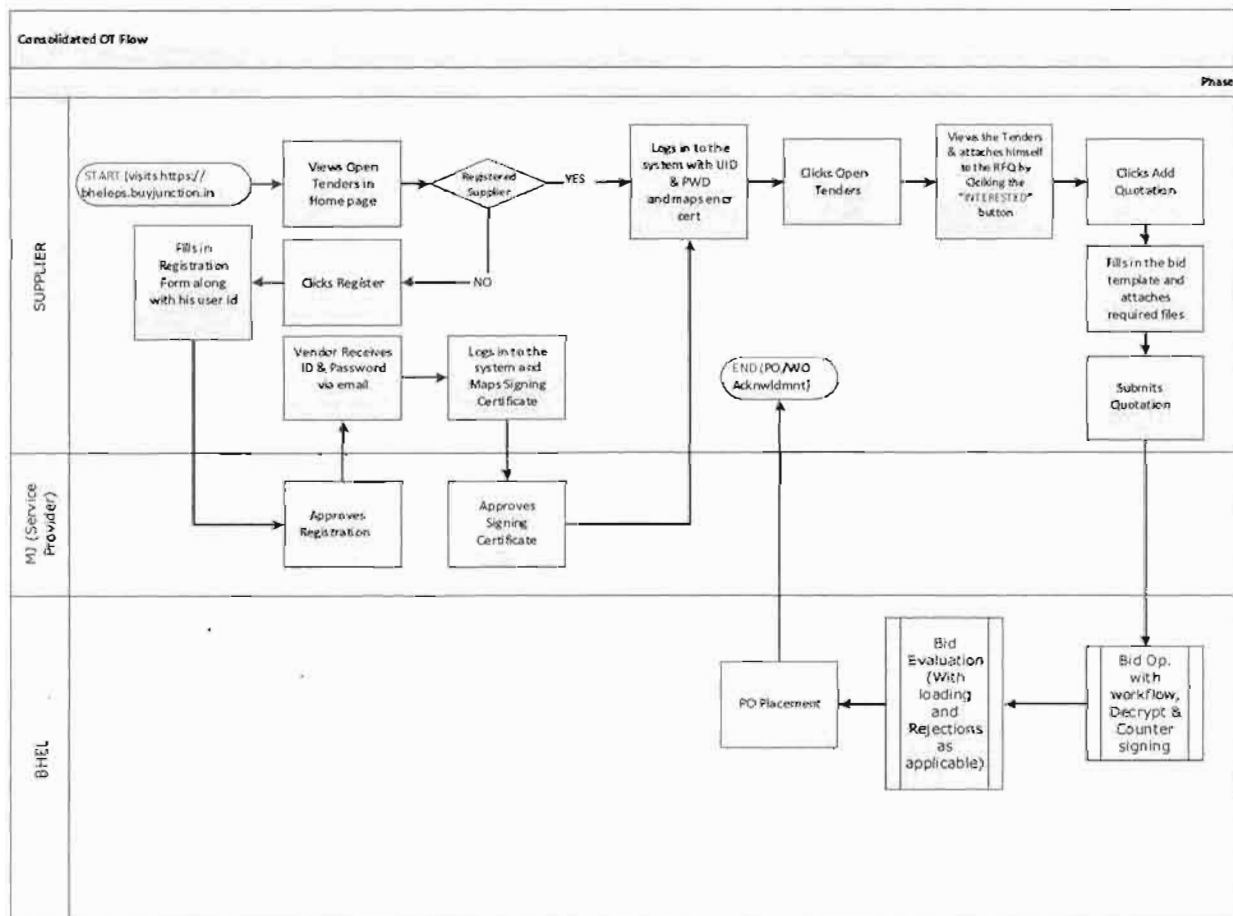
Supplier Login - Select RFQ & view it - Show INTEREST to participate - Respond to RFQ - Add Quotation – Upload proof of TENDER FEE & EMD with the valid document proof (as attachment) – Uploads Pre-qualification docs, Fills Techno-commercial & Price template – Submits Quotation.

NB:

² - ADD Intimation is mechanism by which RFQ owner adds Supplier/Contractor i.e known sources' email ids for Intimation that an OT has been Issued. This is for Information sake only. This does not mean that uninterested supplier cannot participate in OTs. Intimations can be issued by RFQ owner only, both during Tender publication in draft mode and after tender publication till the tender is still live and is viewable by RFQ owner and Approvers only in View Intimation list link in RFQ. This is not to be printed in any report, including chronological report

EPS will only trigger intimation email to all the email ids in the Intimation list.

3. Consolidated Flow Diagram of OT process



INTEGRITY PACT

Between

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi – 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

and

_____, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for

_____. The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitor(s), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1 – Commitments of the Principal

- 1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-
- 1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - 1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
 - 1.1.3 The Principal will exclude from the process all known prejudiced persons.
- 1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

Section 2 – Commitments of the Bidder(s)/ Contractor(s)

- 2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.
- 2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved

in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he / she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

- 2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant IPC/ PC Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 2.1.4 The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3 – Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors". framed by the Principal.

Section 4 – Compensation for Damages

- 4.1 If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent Earnest Money Deposit/Bid Security.
- 4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/Performance Bank Guarantee, whichever is higher.

Section 5 – Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

Section 6 – Equal treatment of all Bidders/ Contractors/ Sub-contractors

- 6.1 The Bidder(s)/ Contractor(s) undertake(s) to obtain from all subcontractors a commitment consistent with this Integrity Pact and report Compliance to the Principal. This commitment shall be taken only from those sub-contractors whose contract value is more than 20 % of Bidder's/ Contractor's contract value with the Principal. The Bidder(s)/ Contractor(s) shall continue to remain responsible for any default by his Sub-contractor(s).
- 6.2 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors.
- 6.3 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

Section 7 – Criminal Charges against violating Bidders/ Contractors /Sub-contractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 –Independent External Monitor(s)

- 8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

- 8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality.
- 8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.
- 8.5 As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or heal the situation, or to take other relevant action. The Monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.
- 8.6 The Monitor will submit a written report to the CMD, BHEL within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.
- 8.7 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.
- 8.8 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant IPC / PC Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the

Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8.9 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.

8.10 The word 'Monitor' would include both singular and plural.

Section 9 – Pact Duration

9.1 This Pact begins and shall be binding on and from the submission of bid(s) by bidder(s). It expires for the Contractor 12 months after the last payment under the respective contract and for all other Bidders 6 months after the contract has been awarded.

9.2 If any claim is made / lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified as above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 – Other Provisions

10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.

10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.

10.3 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

10.5 Only those bidders/ contractors who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.

For & On behalf of the Principal

(Office Seal)

For & On behalf of the Bidder/ Contractor

(Office Seal)

Place-----

Date-----

Witness: _____

(Name & Address) _____

Witness: _____

(Name & Address) _____
